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Judicial Review of Manufacturers' Conscious Design Choices: The Limits of Adjudication

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JUDICIAL REVIEW OF MANUFACTURERS' CONSCIOUS DESIGN CHOICES: THE LIMITS OF ADJUDICATION

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Courts are inherently unsuited to the task of establishing product safety standards in cases involving the liability of manufacturers.[1] Consequently, they regularly and routinely delegate responsibility for such standards to extra-judicial decision-making processes. On occasion, when the pressures are enormous and the difficulties not insurmountable, courts venture beyond their capabilities and attempt to establish product safety standards with which to impose liability, but it is posited herein that establishment of such standards for the purpose of supporting a continuing, independent judicial review of product safety lies beyond the limits of adjudication. This is particularly true in the now-developing area of manufacturers' liability for injury caused by their conscious design choices. Failure to appreciate adequately the limits of adjudication has caused many products liability commentators and a few judges to insist that the adjudicatory process is an appropriate vehicle for devising product safety standards.[2] This insistence has produced confusion over the

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1. Two points require comment at the outset. First, the term "courts" is used in its broad sense to include all adjudicative tribunals, rather than in the narrower sense of implying a distinction between judge and jury. And second, my attention is limited to manufacturers solely in the interests of efficient expression. The following analysis applies equally well to wholesalers, retailers, distributors, suppliers, lessors, etc. Although the question of who should ultimately bear the responsibility for product-caused harm in these various contexts is important from the point of view of substantive policy, it is irrelevant here. The courts encounter the same institutional difficulties whenever they attempt to establish product safety standards, regardless of who the particular defendant happens to be.

2. Some writers make this assumption implicitly, in the context of describing the promising role of the courts in developing the concept of defect in the area of unsafe product design. *See, e.g.*, Carmichael, *Strict Liability In Tort—An Explosion In Products Liability Law*, 20 DRAKE L. REV. 528 (1971); Carsey, *What Constitutes A Design Defect In Products Liability Cases*, 21 FEDER. INS. COUN. Q. 107 (1970); Keeton, *Manufacturers' Liability: The Meaning of "Defect" in the Manufacture and Design of Products*, 20 SYR. L. REV. 559 (1969); Malone, *Product Design Liability—1969 Model*, 35 INS.

proper judicial approach to product safety cases and has raised false hopes on the part of those who would look to the courts in the future for remedies that cannot be forthcoming.

Understandably, most writers in the products liability field have been concerned with the substantive questions of what the rules governing liability are and ought to be.[3] In contrast, relatively little attention has been given to questioning the suitability of the courts institutionally to implement these reforms. Very few writers have actually focused their attention upon the unique involvement of, and limitations upon, the courts in developing and implementing a system of products liability.[4] Indeed, some writers raise the issue only as a straw man. They point deprecatingly to those who argue that the courts (1) should not try to second-guess products experts working in industry,[5] (2) will open themselves to a self-destructive floodgate of products litigation,[6] or (3) will disrupt the economic marketplace by requiring manufacturers to implement vast and expensive change-overs.[7] Moreover, writers who themselves question the capacity of courts to perform the standard-setting task point out that courts (1) are reactive agencies that must wait for cases to come to them,[8] (2) can only address themselves on a case-by-case basis

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COUN. J. 539 (1968); Noel, *Recent Trends in Manufacturers' Negligence as to Design, Instructions or Warnings*, 19 SW. L.J. 43 (1965); Wade, *The Continuing Development of Strict Liability In Tort*, 22 ARK. L. REV. 233 (1968). Others explicitly assert that the courts are capable of establishing independent product safety standards with which to judge the legal adequacy of products brought before them. *See, e.g.*, Dickerson, *Products Liability: How Good Does A Product Have To Be?*, 42 IND. L.J. 301, 331-32 (1967); Katz, *Liability of Automobile Manufacturers for Unsafe Design of Passenger Cars*, 69 HARV. L. REV. 863, 873 (1956); Philo, *Automobile Products Liability Litigation*, 4 DUQ. L. REV. 181, 182 (1965). Even those few writers who specifically address the broader issue of the institutional limitations of the courts agree that the adjudicative process is an appropriate one for the establishment of product safety standards. *See, e.g.*, Katz, *The Function of Tort Liability in Technology Assessment*, 38 U. CINN. L. REV. 587, 635 (1969); Note, *The Role of the Courts in Technology Assessment*, 55 CORNELL L. REV. 861, 868-70 (1970).

3. *See, e.g.*, Calabresi & Hirschoff, *Toward a Test for Strict Liability in Torts*, 81 YALE L.J. 1055 (1972); Franklin, *When Worlds Collide: Liability Theories and Disclaimers In Defective Products Cases*, 18 STAN. L. REV. 974 (1966); Gregory, *Trespass to Negligence to Absolute Liability*, 37 VA. L. REV. 359 (1951); Keeton, *Products Liability—Inadequacy of Information*, 48 TEXAS L. REV. 398 (1970); Kessler, *Products Liability*, 76 YALE L.J. 887 (1967); McKean, *Products Liability: Trends and Implications*, 38 U. CHI. L. REV. 3 (1970); Noel, *supra* note 2; Prosser, *The Fall of the Citadel (Strict Liability to the Consumer)*, 50 MINN. L. REV. 791 (1966); Traynor, *The Ways and Meanings of Defective Products and Strict Liability*, 32 TENN L. REV. 363 (1965); Wade, *Strict Tort Liability of Manufacturers*, 19 SW. L.J. 5 (1965).

4. *See, e.g.*, Katz, *The Function of Tort Liability in Technology Assessment*, *supra* note 2, at 623-41; Sandler, *Strict Liability and the Need for Legislation*, 53 VA. L. REV. 1509 (1967); Note, *supra* note 2.

5. *See, e.g.*, Jenkins, *Product Liability of Manufacturers: An Understanding and Exploration*, 4 AKRON L. REV. 135, 170 (1971); McKenna, *Must the "Strongest Available" Material on the "Safest Conceivable" Design Be Used in Products?*, 1970 A.B.A. SEC. INS. N. & C.L. 343, 351; Nader & Page, *Automobile Design and the Judicial Process*, 55 CALIF. L. REV. 645, 663 (1967); Noel, *Manufacturer's Negligence of Design or Directions for Use of a Product*, 71 YALE L.J. 816 (1972).

6. *See, e.g.*, Nader & Page, *supra* note 5; Noel, *supra* note 5.

7. *See, e.g.*, Kessler, *supra* note 3 at 928; McKenna, *supra* note 5; Nader & Page, *supra* note 5; Noel, *supra* note 5.

8. *See, e.g.*, Note, *supra* note 2, at 870.

to the social problem of product safety,[9] (3) are inappropriate agencies for accomplishing such change because their decisions are traditionally given retroactive effect,[10] (4) are unable to investigate or understand adequately the complex issues brought before them,[11] and (5) will impose a variety of standards, causing an undesirable lack of uniformity.[12]

In varying degrees, all of these points concerning limitations of the courts in the field of products liability are superficial. Those commentators who fall into the "straw man" category raise their points precisely because they are superficial. Yet, even the points raised by the second, more serious group seem to skirt the issue of central importance—the nature and limits of the adjudicative process itself. All of these points are directed toward what might be called the "input" and "output" aspects of the adjudicative process, manifesting concern over how cases get to court and the impact of the judicial decisions upon the broader social issues reflected by those cases. They do not relate, however, to the manner in which the cases themselves are actually decided. Important as the points raised by these authors may be to a total understanding of the role of the courts as problem-solvers in the area of product safety, they are peripheral to the questions of whether and how the courts can actually handle the cases being brought before them for decision.

Before proceeding further, another preliminary matter must be raised. When I speak of courts establishing product safety standards, I of course do not mean the formal promulgation of safety codes to cover prospectively the design and manufacture of products. Rather, I refer to the setting of specific standards implicit in the courts' attempting to apply general reasonableness standards in cases involving allegedly defective products. Passing judgment upon the acceptability or reasonableness of any product or manufacturing process implies a relatively particularized normative standard against which the product or process may be measured.[13] If the courts are to render such judgments, they must either accept and apply particularized standards developed elsewhere or develop standards by themselves.[14] The following

9. *See, e.g.*, Pawlak, *Manufacturer's Liability for Defective Design—The Larsen Decision*, 36 INS. COUN. J. 71, 88 (1969); 19 AM. U.L. REV. 273, 281 (1970).

10. *See, e.g.*, Connolly, *The Liability of a Manufacturer for Unknowable Hazards Inherent in His Product*, 32 INS. COUN. J. 303, 306 (1965); Pawlak, *supra* note 9.

11. *See, e.g.*, Connolly, *supra* note 10; Sandler, *supra* note 4, at 1513.

12. *See, e.g.*, Pawlak, *supra* note 9; Note, *supra* note 9, at 281.

13. *See* W. PROSSER, LAW OF TORTS 206, 207 (4th ed. 1971); 2 F. HARPER & F. JAMES, THE LAW OF TORTS 880-83 (1956); James & Sigerson, *Particularizing Standards of Conduct in Negligence Trials*, 5 VAND. L. REV. 697 (1952). The fact that legal standards are minimum standards does not detract from their status as standards of behavior. *See generally* L. FULLER, THE MORALITY OF LAW 3-13 (2d ed. 1969). Nor does the fact that legal duties are often posed in terms of alternative courses of conduct detract from their status. *See generally* 2 F. HARPER & F. JAMES, *supra* at 963-66.

14. For a persuasive argument that the process of applying law to facts involves three separate judgmental tasks, *see* 1 H. HART & A. SACHS, THE LEGAL PROCESS 373-83 (1958). For a persuasive argument that rules by their very nature inevitably require some "filling in" at the law application stage, *see* Fuller, *Positivism and Fidelity to Law—A Reply to Professor Hart*, 71 HARV. L. REV. 630, 661-69 (1958).

analysis will demonstrate that courts cannot perform, and have not performed, the latter function of establishing product safety standards. Courts are well-equipped for implementing systems of manufacturers' liability in which they render individualized judgments regarding the safety of products by applying specific standards established extrajudicially,[15] and they are equally suited for implementing systems in which individualized judgments, and standards, are not required at all.[16] But courts are not suited to the task of establishing specific product safety standards in the course of applying general reasonableness tests to determine the adequacy of allegedly defective products brought before them.[17] It is in the hope of curbing the growing tendency to demand more of the courts than they can possibly deliver that the following analysis is offered.

I. An Hypothesis Concerning the Limits of Adjudication: Polycentricity and the Establishment of Product Safety Standards

A. *The Concept of Polycentricity*

Perhaps no other American legal writer has paid more attention to the limits of adjudication than Professor Fuller. In several published articles, he has developed the hypothesis that certain judgmental problems, to which he applies the adjective "polycentric," are inherently unsuited to being solved by adjudication.[18] An understanding of his thesis necessarily begins with an understanding of the nature of the adjudicative process. Fuller defines adjudication

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15. This technique is employed, for example, when a court adopts and applies a standard devised by one of the federal regulatory agencies.

16. The concept of strict liability for manufacturing flaws illustrates this technique well.

17. *Cf.* Calabresi & Hirschoff, *supra* note 3. The authors describe what they call the "Learned Hand type tests" for manufacturers' liability, in which a cost-benefit analysis is made by a judge or a jury as to the relative costs of the accident and of accident avoidance. They suggest an alternative test for liability that does not require the court to make such a cost-benefit analysis but, instead, requires only a judicial decision as to which of the parties to the accident *"is in the best position to make the cost-benefit analysis between accident costs and accident avoidance costs and to act on that decision once it is made." Id.* at 1060. Although the authors focus most of their attention upon the substantive content of the rules and the underlying policies, subjects which I have intentionally chosen to avoid wherever possible, their analysis shares at least one important common boundary with mine—the process, central to their thesis, to which they refer by the phrase "cost-benefit analysis." With little loss of meaning, their phrase could be substituted throughout this article in place of my phrase, "establishing product safety standards." They speak of courts refusing to make cost-benefit analyses; I speak of courts refusing to establish product safety standards. They speak of courts imposing liability upon parties who are in the best position to make cost-benefit analyses; I speak of courts delegating to various parties responsibility for the establishment of product safety standards. To a very large extent, although from different perspectives and employing different terminology, we are talking about the same things.

18. *See* Fuller, *Adjudication and the Rule of Law*, 1960 Proc. Am. Soc'y Int'l L. 1; Fuller, *Collective Bargaining and the Arbitrator*, 1963 Wis. L. Rev. 3. Professor Fuller borrows the concept of the polycentric task from Michael Polyani. *See* M. Polyani, The Logic of Liberty 170-84 (1951), *cited in* Fuller, *Adjudication and the Rule of Law*, *supra* at 3, and Fuller, *Collective Bargaining and the Arbitrator*, *supra* at 33 n.26.

> as a social process of decision which assures to the affected party a particular form of participation—that of presenting proofs and arguments for a decision in his favor.[19]

He is quick to recognize that adjudication is not the only social process of decision in which those affected are guaranteed some form of participation. Elections provide for participation through voting, and contracts provide for participation through negotiation.

Rather, it is the kind of participation available in court—the implications growing from Professor Fuller's phrase "presenting proofs and arguments"—that sets adjudication apart as a social process of decision. The primary implication in the concept is the requirement that the presentations be addressed to an impartial tribunal that is bound to determine the relevant facts and to apply established rules to reach reasoned results. Fuller's definition of adjudication, in other words, implicitly includes the requirement that the proofs and arguments be based upon rules sufficiently specific in their content to enable the parties to argue rationally that a proper application of the rules dictates a certain result which the impartial tribunal is obligated to reach.

It follows from this emphasis upon the unique form of participation afforded to litigants in adjudication that only those problems that lend themselves to adversary proofs and arguments of the sort described above are amenable to solution by means of adjudication. The characteristic of most legal problems that renders them adjudicable is the unique manner in which the various issues presented in a case are logically related to each other. In presenting the proofs and arguments in a legal problem, the parties are able to take up and consider each issue separately, in an orderly sequence, although the issues are not necessarily unrelated to each other. A party's argument on the second issue may relate to and depend upon his argument on the first; and, similarly, his argument on the third issue may be related to his argument on the second. But in addressing himself to each successive point in turn, a litigant may momentarily exclude the others and assume, for the sake of his argument, that the court will render a favorable decision on the preceding points upon which he relies. Thus, where one person sues another seeking to recover for breach of contract, a number of interrelated issues may be presented, including issues of offer, lapse, acceptance, breach and measure of recovery. Regardless of the number of issues to be decided, the substantive law of contracts will have arranged and interrelated them in a way that allows the parties to address themselves in argument to each in turn, to the momentary exclusion of the others. The litigants will be able to isolate analytically any given issue in the case (e.g., whether a communication from one party to the other constitutes an offer) and to talk of a favorable decision in relation to that issue without simultaneously considering all of the others.

19. Fuller, *Collective Bargaining and the Arbitrator*, *supra* note 18, at 19.

The manner in which established rules of decision render meaningful participation feasible may most clearly be understood by considering what would happen if for some reason the rules did not or could not perform the function of isolating issues for decision. What if, in other words, all of the issues in cases typically brought to courts for decision were related to one another in such a way that it was impossible for a litigant to address himself to any one issue apart from a consideration of all the others? Under those circumstances, a litigant's initial argument relating to any single issue would change in substance depending upon how the court might react to every other issue. Thus, a case containing a number of interdependent issues for decision might present innumerable analytical permutations to which the parties would logically be required to address themselves. Meaningful participation in the decision through formal proofs and argument, in the manner described earlier, would be impossible. The parties would never be able to work their way logically through an unbroken chain of reasoning, nor would they be able to assert with any confidence that under applicable law the court was bound to accept any one of the myriad of possible approaches to the exclusion of all the others. At the end of the trial, when the last word from the parties had been uttered, the court would be left to arrive at a solution of the problem on its own, largely unaided and uninfluenced by either the arguments or the law. The parties would have been denied meaningful participation by the nature of the problem presented; and whatever the court might decide, its decision would not deserve to be called principled.[20]

It is to this last type of problem that Professor Fuller applies the adjective "polycentric." As both the term itself and the preceding discussion indicate, polycentric problems are many-centered problems, in which each point for decision is related to all the others as are the strands of a spider web. If one strand is pulled, a complex pattern of readjustments will occur throughout the entire web. If another strand is pulled, the relationships among all the strands will again be readjusted. 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.

The essential characteristics of polycentric problems can perhaps be best

20. *See generally* Dickinson, *Legal Rules: Their Function in the Process of Decision*, 79 U. PA. L. REV. 833 (1931).

communicated by means of a concrete example. Consider the task that would face a court called upon by a coachless football team to assign positions to the players in a principled fashion.[21] The difficulty in submitting this problem to adjudication is that, assuming the basis for assignment intended by the team to be one of maximum benefit to the team as a whole, the decision regarding any one of the players cannot sensibly be made in isolation from the decisions with respect to all the others. It is not possible to decide who should play quarterback, for example, and then decide separately who should play fullback, for the former decision will be influenced by the latter. And who plays end or center will be influenced by who plays quarterback and fullback. Attempting to adjudicate a problem of this sort would not be likely to make anyone happy and would inevitably frustrate the team's intent since the desirability of any one player playing any position is affected by the position played by everyone else. One can readily appreciate that if there were fifty or more possible players available, the "trial" of their assignment on a legal basis as unspecific as "maximum benefit" would quickly turn into a shambles.

Even the simpler problem of finding a new fullback among players with set assignments is completely interdependent and polycentric. If player *A* were moved from end to fullback, for instance, player *B* might have to be moved from center to end, necessitating consideration of whether players *C* or *D* should be moved to center, and so on. Thus, even if only a single player were altered, the court might have to undertake a re-evaluation of who should play at each position on the team.

Were the court, in the face of these difficulties, to proceed to assign players to the various positions on its own, the outcome would be certain to bear only a happen-stance relation to the whole team's intent or the players' arguments regarding the complex sets of interdependent abilities and priorities. Were a court ever unfortunate enough to be confronted with strong pressures to consider such a case, one may confidently predict that in the end the court would pursue one of two alternatives. It would either appoint a coach and give him full authority to impose his discretionary judgment regarding how the team should function, or refuse altogether to adjudicate a solution to the problem, thus allowing—and in a sense pressuring—the players to appoint a coach themselves or informally work out a mutually acceptable set of assignments.

Of course, football teams are never designed in court, and no rational person would think of bringing them there for that purpose. Indeed, reflection upon the ways in which questions concerning football teams do get into court supports the view that one of the important functions of the substantive law is to define the bases of legal rights and duties in such a way that polycentricity is almost completely eliminated from legal controversies. For ex-

21. *See* Fuller, *Adjudication and the Rule of Law*, *supra* note 18, at 4.

ample, if one of the football players were to bring an action based upon an asserted right to play quarterback, he would undoubtedly be forced to rely upon a clause in his contract rather than being allowed to rely directly upon some broad notion of "the good of the team." The question before the court for decision would not be the polycentric question of "What is the best team lineup?" but, rather, the more manageable question, "Does he have rights under the contract?" The substantive rule establishing the player's rights would practically eliminate the polycentricity otherwise inhering in the task of deciding who should be quarterback.

Even though polycentric problems are not suited to adjudication, it does not follow that they are incapable of rational resolution. Adjudication is, of course, only one of several social processes of decision, and there are other such processes—contract negotiation and the exercise of managerial authority —that are ideally suited to solving polycentric problems. The guarantee of a player's right to be quarterback, for example, can best be accomplished by contract negotiation. Allowed to sit down informally and "talk things out," the players and the coach can arrive at a mutually acceptable agreement on the assignment. On a somewhat broader scale, it is to this process of negotiation that the law of contracts prospectively delegates a major portion of responsibility for the achievement of legally binding solutions to the polycentric problem of resource allocation.

The exercise of managerial authority is also well suited to providing rational solutions to polycentric problems.[22] Managerial authority is exercised when one person has the authority to impose his own judgment upon the circumstances which he confronts. It should be observed that the manager in this situation acts very differently from a court. He is not bound to apply any law in reaching a decision and, in fact, is free to make judgments through the exercise of his unfettered discretion.[23] The exercise by coaches of managerial authority, of course, is the primary process by which football team lineups are designed.[24]

Finally, before applying the foregoing analysis of the limits of adjudication to the governing products liability, two important points must be made.

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22. *See* Id. at 5.

23. The adjective "unfettered" may be a bit strong here. If the manager is attempting to promulgate rules to be followed by others (the football coach, for one, would probably be issuing general directives to his players and staff), Professor Fuller would insist that he must adhere to eight basic principles if he is to succeed as an effective rule maker. *See* L. FULLER, THE MORALITY OF LAW 33-94 (1964).

24. While it is helpful to think of managerial authority and contract negotiation as theoretically separate and distinct processes, in actuality they never exist in their pure forms. The former suggests complete and total power vested in one person, or group, to make a binding decision; the latter suggests a perfect balance between persons, or groups, of equal power. In reality, neither total power nor equally balanced power is possible, at least where there are two or more persons with competing interests. Instead, one finds mixtures of the two processes and can only label them as they tend toward one end of the spectrum or the other. This same spectrum appears when one is trying to label problems polycentric or not. Few problems are clearly at one end of the spectrum.

First, the thesis that courts are "unable" to solve polycentric problems is an overstatement. Strictly speaking, the hypothesis advanced above is that courts are ill-suited to solving polycentric problems, not that they are absolutely incapable of doing so. The more polycentric the problem, the less equipped are the courts to deal with it. Professor Fuller uses the example of a sledge hammer, which is very well suited to driving stakes and which will serve in a pinch for cracking nuts, but which may be thought of as hopeless for opening cans.[25] Nonetheless, if the need is great enough, as where any solution is preferable to no solution at all, the sledge hammer can be used to open cans, just as courts can be employed to provide some kinds of responses to even the most polycentric problems. The point is that in both instances the results would be exceedingly messy.

Second, 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, the 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.

B. *Polycentricity and the Establishment of Product Safety Standards*

There can be little doubt that the problems confronting the products engineer with respect to the establishment of specific standards for the design

25. *See* Fuller, *Adjudication and the Rule of Law*, *supra* note 18, at 1.

and manufacture of his product are no less polycentric than those facing the football coach as he undertakes to assign positions for his players.[26] Because absolute safety is not attainable and—in any event—is not the sole desirable objective of the product's design, the engineer must place relative values upon a multitude of factors. The decisions he must make regarding these factors are as interrelated and interdependent as the strands of an intricate web. Intelligent answers to the question of "How much product safety is enough?"—the question that will concern us throughout—can only be provided by a process that considers such factors as market price, functional utility, and aesthetics, as well as safety, and achieves the proper balance among them.[27] Ultimately, the question reduces to "What portion of society's limited resources are to be allocated to safety, thereby leaving less to be devoted to other social objectives?"

Accepting that the products engineer faces extremely polycentric problems in designing his products and their methods of manufacture, it is clear that a court would face the same degree of polycentricity were it to attempt to establish independent product safety standards with which to review the engineer's decision in a products liability case. Unless the court were in some way able to avoid establishing independent standards, it would be required to take into account the same factors that the products engineer did originally. To be sure, the court might weigh these factors differently —legal standards in this context are properly thought of as minimum standards[28]—but the requirement that these numerous, interrelated factors be weighed at all would cause the judicial establishment of product safety standards to retain all of this task's inherent polycentricity.[29]

It follows that the process of adjudication administered by the courts is not institutionally suited to establishing product safety standards. Were courts to attempt independently to adjudicate the relative reasonableness of various product designs and methods of manufacture, they would encounter the same difficulties that were predicted above in connection with any attempt by a court to assign various players to their positions on a football team. Every alternative advanced by either party would have to be evaluated in light of many factors, of which safety is but one. This does not mean the

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26. For an illustration of the complex and polycentric considerations involved in the establishment of safety standards for product designs, *see* text preceding note 162 *infra.*

27. It is this process of achieving the proper balance among competing interests to which Professors Calabresi and Hirschoff, among others, refer as "making a cost-benefit analysis." *See* note 17 *supra.*

28. *Cf.* note 13 *supra.*

29. A case involving the design of a single component of a product would, of course, be less complex than one confronting the court with the broader problem of the product's design as a whole. Such a case, however, would not necessarily be significantly less polycentric. In Garst v. General Motors Corp., 207 Kan. 2, 484 P.2d 47 (1971), for example, the court was able to isolate for inquiry the steering system of a heavy industrial machine. Nevertheless, the issue of the appropriate standard of safety was exceedingly polycentric. *See* text preceding note 162, *infra.*

courts are powerless. They may, for example, adopt and apply specific standards established elsewhere by decisional processes more suited to that task, or they may develop alternative approaches which eliminate altogether the necessity of passing judgment upon the reasonableness of the various product designs and manufacturing techniques brought before them for review. The task which courts are not suited to undertake, however, is that of establishing product safety standards by themselves.

Of course, it is true that in applying the general concepts of negligence in non-products cases courts have been establishing safety standards of one sort or another for more than a century,[30] and have to some extent been exposed to the difficulties inherent in the solution of polycentric problems. Certainly the negligence standard of reasonable care is very general, providing relatively few specific guidelines for decision. I submit, however, that the courts were lured from the secure, essentially unicentric world of early nineteenth century strict liability into the potentially polycentric world of negligence-based liability by the strong pull of substantive policy,[31] and that they have been flirting with disaster ever since. The difficulties were submerged from the start by two institutions: the reasonable man test and the jury. The flesh-and-blood, moralistic qualities of the reasonable man were ideally suited to helping both lawyers and courts address themselves to solutions to the polycentric problems which the relatively non-technical cases of the time presented.[32] And the jury, which has been delegated much of the responsibility for actually deciding the ultimate issues raised under the general reasonableness standard, is ideally suited to burying in a collective laymen's verdict whatever analytical difficulties may be encountered at the law-application stage.[33]

These two devices served the courts in combating even the relatively low levels of polycentricity presented by the early cases. Nonetheless, the administration of the negligence concept over the last one hundred years

30. The most famous of the early cases in this country establishing negligence as the basis for recovery is Brown v. Kendall, 60 Mass. (6 Cush.) 292 (1850). *See also* Vincent v. Stinehour, 7 Vt. 62 (1835).

31. *See* F. HARPER & F. JAMES, THE LAW OF TORTS 747-52 (1956); W. PROSSER, LAW OF TORTS 139, 140 (4th ed. 1971); Gregory, *supra* note 3.

32. The manner in which the reasonable man concept helps courts confront low-level polycentricity should be fairly obvious. In effect, the decision-maker (often the jury in negligence cases) is asked to conjure up a vehicle for the hypothetical exercise of either managerial authority or contract negotiation. *See* text preceding and accompanying notes 22-24, *supra*. For more on the subject of the reasonable man, *see generally* F. HARPER & F. JAMES, THE LAW OF TORTS 928-36 (1956); W. PROSSER, LAW OF TORTS 149-66 (4th ed. 1971); James, *The Qualities of the Reasonable Man in Negligence Cases*, 16 MO. L. REV. 1 (1951); Reynolds, *The Reasonable Man of Negligence Law: A Health Report On the "Odious Creature,"* 23 OKLA. L. REV. 410 (1970).

33. The development and retention of the civil jury undoubtedly reflects to some degree an underlying satisfaction with balancing the formality of substantive law with the layman's untutored sense of justice. *See generally* Allen, *Learned and Unlearned Reason*, 36 JURID. REV. 254 (1924); Bohlen, *Mixed Questions of Law and Fact*, 72 U. PA. L. REV. 111 (1924); James, *Functions of Judge and Jury in Negligence Cases*, 58 YALE L.J. 667 (1949).

is ultimately consistent with my hypothesis, for it must be conceded that it has been accomplished only with notable signs of strain and difficulty. The confusion generated by the doctrine of *res ipsa loquitur* is but one example.[34]

That the limits of adjudication have influenced the courts' approach to negligence cases may be further substantiated by reviewing what has happened in a non-products field in which advancing technology early threatened the courts with difficult polycentric problems—medical malpractice actions. From the beginning, the courts have delegated the establishment of specific standards in malpractice cases to the collective managerial authority of the medical profession.[35] This approach to malpractice cases is arguably at least partially attributable to the necessity of avoiding highly polycentric problems. Judges with any natural instinct for survival would no more think of trying to establish an independent standard with which to permit the jury to evaluate a defendant doctor's performance of an appendectomy than they would think of trying to establish independent standards for assigning players to a football team or—as I shall now attempt to demonstrate—assessing an engineer's consumer product.

II. Products Liability Case Law: Manufacturing Flaws and Generically Dangerous Products

A. *A Framework for Analysis*

The most basic distinction in products liability cases is between cases involving manufacturing flaws and generically dangerous products.[36] Although some confusion persists,[37] this distinction has been fairly widely

34. *See generally* W. Prosser, Law of Torts 211-35 (4th ed. 1971). (The doctrine "has been the source of so much trouble to the courts that the use of the phrase itself has become a definite obstacle to any clear thought. . . ." *Id.* at 213.) On the more general subject of the development of the negligence concept, Professor Gregory has said, referring to the parallel lines of absolute liability for hazardous activity and liability for negligence: "It is stuff like this that drives a torts professor mad and which convinces his students at the threshold of their professional training that the law is a crazy mess." Gregory, *supra* note 3, at 379. *Cf.* Cowan, *The Victim of the Law of Torts*, 33 Ill. L. Rev. 532 (1939).

35. *See* F. Harper & F. James, The Law of Torts 968, 969, 979 n.6 (1956); W. Prosser, Law of Torts 161-66 (4th ed. 1971); McCoid, *The Care Required of Medical Practitioners*, 12 Vand L. Rev. 549, 558-75 (1959). For more recent treatments of the subject of medical malpractice, reflecting current problems and developments, *see generally* Lillard, *Arbitration of Medical Malpractice Claims*, 26 Arb. J. 193 (1971); Project, *The Medical Malpractice Threat: A Study of Defensive Medicine*, 1971 Duke L.J. 939.

36. The distinction involves more than simply what law is applicable. The term "flaw" refers to a feature, or aspect, of a product, while the term "generically dangerous" refers to the product as a whole. And the term "flaw" implies that a product is substandard, while "generically dangerous" does not. Moreover, to the extent that all products involve some generic risk or danger in use, I should point out that I mean to refer to products that are especially or unusually dangerous.

37. *See* Thomas v. General Motors Corp., 13 Cal. App. 3d 81, 88, 91 Cal. Rptr. 301, 305 (1970) ("There is no rational distinction between design and manufacture, since a product may be equally defective and dangerous if its design subjects protected persons to unreasonable risk as if its manufacture does so."); Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 501 P.2d 1153, 1163, 104 Cal. Rptr. 433, 443 (1972). ("Although it is

recognized in the appellate opinions and in commentaries.[38] Manufacturing flaws are imperfections that inevitably occur in a typically small percentage of products of a given design as a result of the fallibility of the manufacturing process.[39] A flawed product does not conform in some significant aspect to the intended design, nor does it conform to the great majority of products manufactured in accordance with that design. Although manufacturing flaws may, depending on the type of product, be obvious to even the casual observer, they are for the most part practically undiscoverable until the product fails during use.

In contrast to products that are unusually dangerous because of flaws that result from the fallibility of the manufacturing process, generically dangerous products are unusually dangerous because of the manner in which they are designed or marketed. Therefore, as the term itself suggests, a generically dangerous product conforms to the intended design and is substantially identical in relevant aspects to all the other unflawed products manufactured according to the same design or marketed in the same manner. Although generically dangerous products may be inadvertently created,[40] the manufacturer may—and often does—deliberately decide to market a product that it knows to be generically dangerous.[41] From the consumer's perspective, the risks of harm inherent in generically dangerous products are more likely to be obvious than the risks inherent in flawed products.[42] Generically dangerous products may be further subdivided into products that are unusually dangerous because of the manufacturer's inadvertent de-

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easier to see the 'defect' in a single imperfectly fashioned product than in an entire line badly conceived, a distinction between manufacture and design defects is not tenable.") In fairness to these courts, it should be noted that they were dealing with borderline cases in which the utility of the distinction was peculiarly diminished.

38. For appellate opinions, *see, e.g.*, Vandercook & Son, Inc. v. Thorpe, 395 F.2d 104, 105 (5th Cir. 1968); Norton Co. v. Harrelson, 278 Ala. 85, 89, 176 So. 2d 18, 21 (1965); Ginnis v. Mapes Hotel Corp., 86 Nev. 408, 413-14, 470 P.2d 135, 137-38 (1970); Corbin v. Camden Coca-Cola Bottling Co., 60 N.J. 425, 431, 290 A.2d 441, 444 (1972); Heaton v. Ford Motor Co., 248 Ore. 467, 471-73, 435 P.2d 806, 808-09 (1967); Mickle v. Blackmon, 252 S.C. 202, 224-34, 166 S.E.2d 173, 184-87 (1969).

For commentaries, *see, e.g.*, Karasik, *"State of the Art of Science"; Is it a Defense to Products Liability?*, 60 ILL. B.J. 348 (1972); Keeton, *supra* note 2; Nader & Page, *supra* note 5, at 649-51; Noel, *supra* note 5.

39. The manufacturing process to which I refer includes the inspection process. Therefore, harmful impurities are flaws, even though the impurities occur naturally.

40. *See* text accompanying notes 58-64 *infra* for a general description of inadvertent design errors.

41. *See* note 66, *infra* and accompanying text. Obviously, a responsible manufacturer would not deliberately decide to market a product that it knew to be legally defective, but the same manufacturer might decide to market a very dangerous product, *e.g.*, a firearm, in the belief that its utility outweighs the risks created. These comments point up some of the difficulties in applying the term "defective" in cases involving product design. As I employ the concepts, generically dangerous products are not necessarily defective, depending upon whether, on balance, the utility outweighs the risks. I have reserved the label "generically dangerous" for products which are unusually, but not necessarily illegally, dangerous. All products involve what could be termed generic risks of harm, but the phrase "generically dangerous" is reserved herein for products whose generic risks are especially great.

42. *See* note 118 *infra* and accompanying text.

sign errors and those that are dangerous because of a conscious choice in the product's design. It is in this latter category—conscious design choices—that the law is most unsettled today and that the greatest pressures are generated for courts to attempt to adjudicate polycentric problems.

B. *Manufacturers' Liability for Harm Caused by Manufacturing Flaws*

The late nineteenth and early twentieth centuries witnessed a rapid growth of technology in consumer products,[43] and the first products cases to threaten the courts with potentially unadjudicable problems involved manufacturing flaws.[44] The necessity of determining whether a particular product was flawed required no judicial standard-setting, for the intended design provided a ready-made standard with which to make that judgment.[45] Instead, difficulties were presented by the necessity of reviewing the reasonableness of defendant manufacturers' decisions regarding quality control. Invoking the negligence concept, injured plaintiffs sought to have the courts review existing quality control levels and establish specific standards by which to judge individual defendants' efforts to produce flawless products.

Predictably, the courts early declined to adjudicate answers to the polycentric question, "How much quality control is enough?" They eschewed that task by simply deciding that defendant manufacturers owed no duty of care to injured consumers with whom they had not dealt contractually.[46] Although the courts' position was not taken out of deference to Professor Fuller's

43. *See* F. ALLEN ET AL., TECHNOLOGY AND SOCIAL CHANGE (1957); S. ROSEN & L. ROSEN, TECHNOLOGY AND SOCIETY: THE INFLUENCE OF MACHINES IN THE UNITED STATES 243-306 (1941).

44. *See* cases cited in note 46 infra, all of which involved manufacturing flaws.

45. Of course, the further question of how closely a particular product must conform to the intended design was theoretically presented but, at least in personal injury cases, it never caused any difficulties. Even today, under the strict liability rule set forth in RESTATEMENT (SECOND) OF TORTS § 402A, the courts are theoretically required to find that the defective condition is "unreasonably dangerous." Most courts have ignored this additional requirement in cases involving personal injuries caused by manufacturing flaws, and recent cases in which the question was squarely presented decided against imposing any such additional requirement. Glass v. Ford Motor Co., 123 N.J. Super. 599, 304 A.2d 562 (1973); Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 501, P.2d 1153, 1158-63, 104 Cal Rptr. 433, 438-43 (1972).

46. *See, e.g.*, Savings Bank v. Ward, 100 U.S. 195 (1879); Lebourdais v. Vitrified Wheel Co., 194 Mass. 341, 80 N.E. 482 (1907); Loop v. Litchfield, 42 N.Y. 351, 1 Am. Rep. 543 (1870); Burkett v. Studebaker Bros. Mfg. Co., 126 Tenn. 467, 150 S.W. 421 (1912).

Another feasible alternative would have been to adopt the standard of custom in the industry, just as the courts looked to the medical community for standards by which to adjudge issues of medical malpractice. As a matter of substantive policy, of course, the fact that the medical community is a professional community would serve as a basis for distinguishing it from the manufacturing community and affording the latter different treatment. Not only might a professional community be more readily trusted to establish standards reflecting the best interests of the consuming public, but such a community might also be expected to establish standards characterized by greater uniformity and formality, thus aiding substantially in solving problems of proof. *See generally* McCoid, *supra* note 35. The manufacturing community, on the other hand, might be suspected of self-dealing in the establishment of standards. *See* note 49 *infra*. However, strictly from the viewpoint of the limits of adjudication, custom in the industry might have been expected to work adequately well as a source of standards for quality control.

theories,[47] nonetheless, by adopting the no-duty approach, the courts succeeded in protecting themselves from the polycentricity inherent in attempting to establish specific standards with which to review the reasonableness of manufacturers' efforts at quality control. In effect, they solved the institutional problems inhering in the general reasonableness standard by refusing to apply it. In the absence of judicial intervention, manufacturers' decisions regarding quality control would presumably be made in response to consumer pressures in the marketplace.

Although this no duty-privity response may have been institutionally feasible, it eventually proved to be politically unacceptable. Because of the inability of the typical consumer to assess the risks associated with manufacturers' decisions regarding quality control,[48] and the very real possibility of abuses on the part of the manufacturing community,[49] the process of marketplace negotiation upon which courts had relied came to be regarded as insufficient to protect the interests of consumers.

The end of what may be viewed, at least from the perspective of the limits of adjudication, as a sheltered interlude[50] came with *MacPherson v. Buick Motor Co.*,[51] in which Chief Judge Cardozo, applying relentless logic,

47. *See* W. PROSSER, LAW OF TORTS 641-42 (4th ed. 1971); Green, *The Thrust of Tort Law: Part II*, 64 W. VA. L. REV. 115, 118-19 (1962); Comment, *Products Liability —The Expansion of Fraud, Negligence and Strict Tort Liability*, 64 MICH. L. REV. 1350, 1356 (1966). Lord Abinger made the following ambiguous statement in the English decision generally believed to be the source of the no duty-privity rule: "Unless we confine the operation of such contracts as this to the parties who entered into them, the most absurd and outrageous consequences, to which I can see no limit, would ensue." Winterbottom v. Wright, 10 M. & W. 109, 114, 152 Eng. Rep. 402, 405 (Exch. 1842).

48. As one eminent judge described the consumer's predicament:

> Manufacturing processes, frequently valuable secrets, are ordinarily either inaccessible to or beyond the ken of the general public. The consumer no longer has means or skill enough to investigate for himself the soundness of a product . . .

Escola v. Coca-Cola Bottling Co., 24 Cal. 2d 453, 467, 150 P.2d 436, 443 (1944) (Traynor, J., concurring).

49. The first, and undoubtedly the most volatile and explosive, movement to eliminate abuses by manufacturers occurred in the early years of this century and concerned food and drugs. *See generally* Regier, *The Struggle for Federal Food and Drugs Legislation*, 1 LAW & CONTEMP. PROB. 3 (1933). A contemporary critic of manufacturers' immunity from liability has concluded:

> To put the matter bluntly, a large proportion of mass products are consciously made inferior as the traffic will bear and are advertised by conscious misrepresentations as far superior to their known quality. The combination of low quality production and high quality lying makes it impossible for those using the products . . . to distinguish good merchandise from bad without the services of a general testing laboratory.

Cowan, *Some Policy Bases of Products Liability*, 17 STAN. L. REV. 1077, 1087 (1965). *See generally* authorities cited in note 141 *infra*.

50. Certainly from no other perspective may this interlude be described as "sheltered." Prior to its final overthrow, the no duty-privity rule was subjected to constant pressure in litigation and made the subject of numerous exceptions. The most important of these exceptions, originating in Thomas v. Winchester, 6 N.Y. 397 (1852), imposed liability for negligence upon manufacturers of products "imminently or inherently dangerous." *See* Freezer, *Tort Liability of Manufacturers and Vendors*, 10 MINN. L. REV. 1 (1925). From the perspective of the limits of adjudication, the interesting aspect of these exceptions is the manner in which they operated, to some extent at least, to reduce the polycentricity of the cases reaching the triers of fact for determination of liability. *Cf.* note 166 *infra*, and accompanying text.

51. 217 N.Y. 382, 111 N.E. 1050 (1916).

overturned the defense of lack of privity in negligence actions involving flawed products, and denied forever to American courts the no duty-privity rule escape route. *MacPherson* exposed the courts to the difficulties of attempting to establish specific standards with which to judge individual instances of allegedly negligent manufacture. It thereby became institutionally imperative for the courts to develop some means of delegating the establishment of standards to an extrajudicial process better suited than adjudication to performing the task. Persuasive reasons of substantive policy argued against the adoption and enforcement of standards established by industry custom[52] and, instead, encouraged the development of a rule of strict liability for harm caused by manufacturing flaws. Denial of the extreme of the no duty-privity approach thus forced courts to the opposite extreme of strict manufacturers' liability for injuries to foreseeable plaintiffs.

In terms of its effect on the courts' capacity to adjudicate the issues, the strict liability rule is identical to the no duty rule. Under both, courts avoid the necessity of establishing product safety standards by refusing to pass judgment upon the reasonableness of defendants' efforts at quality control; but by substituting manufacturers' liability for manufacturers' immunity, the substantive policy objections to the no duty-privilege approach are overcome. Thus, while substantive policy was the impetus for change, the realities of the limits of adjudication forced the techniques developed to implement this shift. This fact has been largely overlooked because the manufacturing flaw area represents a happy coincidence of the substantively desirable and the institutionally feasible. The doctrine of strict products liability accomplishes not only the current policy objective of internalizing at least a portion of the costs of the manufacturing activity, but also the judicial necessity of avoiding the establishment of quality control standards.

C. *The Developing Area of Generically Dangerous Products*

Strict liability for harm caused by generically dangerous products has developed more slowly than for flawed products, and with greater attendant confusion. Although courts quite early purported to be willing to impose liability upon manufacturers for negligent design[53] and for negligent failure to warn of hidden risks,[54] disagreement continues whether courts have

52. The most important reason involved the potential of abuse assumed to accompany such a delegation. *See* The T. J. Hooper, 60 F.2d 737, 740 (2d Cir. 1932) (L. Hand, J.). *See also* Morris, *Custom and Negligence*, 42 COLUM. L. REV. 1147, 1155 (1942); note 46 *supra*.

53. *See, e.g.*, United States Raditor Corp. v. Henderson, 68 F.2d 87 (10th Cir. 1933); Pierce v. C.H. Bidwell Thresher Co., 153 Mich. 323, 116 N.W. 1104 (1908); Reusch v. Ford Motor Co., 196 Wash. 213, 82 P.2d 556 (1938). *See also* RESTATEMENT (SECOND) OF TORTS § 398. *See generally* F. HARPER & F. JAMES, THE LAW OF TORTS 1541-57 (1956); W. PROSSER, LAW OF TORTS 644-46 (4th ed. 1971).

54. *See, e.g.*, Walters-Pierce Oil Co. v. Deselms, 212 U.S. 159 (1909); Wolcho v. Rosenbluth, 81 Conn. 358, 71 A. 566, 21 L.R.A.N.S. 571 (1908); Schubert v. J.R. Clark Co., 49 Minn. 331, 51 N.W. 1103, 15 L.R.A. 818, 32 Am. St. Rep. 559 (1892). *See also*

adopted, or should adopt, liability theories beyond traditional negligence.[55] The relative slowness and confusion which characterize the development of doctrine in this area suggest that in these cases, in contrast to cases involving manufacturing flaws, courts have encountered substantial difficulties in resisting pressures to establish product safety standards and, thus, to exceed the limits of adjudication.

One source of these difficulties should be recognized at the outset: in cases involving generically dangerous products, no simple mechanical test is available with which to determine the threshold question of whether a particular product is defective. In cases involving manufacturing flaws, of course, the courts are not required to establish standards with which to judge the acceptability of individual products because of the built-in availability in every case of a specific standard—the intended product design—with which to determine whether a given product is flawed and, therefore, defective.[56] In cases involving generically dangerous products, however, no built-in test for defectiveness is available—the intended design itself is attacked by plaintiff as the source of unreasonable risks of harm. Hence, if the courts are to make a threshold determination regarding the defectiveness of generically dangerous products brought before them, they will be compelled to adopt and apply some form of a general reasonableness test, exposing themselves in the process to the threats of polycentricity that such an approach implies.[57] It is not surprising, then, that the rules governing liability for generically dangerous products have developed more slowly and with greater confusion than have the rules governing liability for manufacturing flaws.

1. *A Workable Distinction: Inadvertent Design Errors and Conscious Design Choices.* Demonstrating that courts have not engaged to any meaningful extent in the establishment of product safety standards in cases involving generically dangerous products is not the easiest of tasks. There are thousands of reported decisions in which appellate courts have permitted juries to pass judgment upon the reasonableness of the manner in which defendant manufacturers have designed or marketed their products,[58] and

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RESTATEMENT (SECOND) OF TORTS, § 388. *See generally* Dillard and Hart, *Product Liability: Directions for Use and the Duty to Warn*, 41 VA. L. REV. 145 (1955); Keeton, *supra* note 3; Noel, *supra* note 2.

55. *See, e.g.*, Green, *Tort Law Public Law in Disguise*, 38 TEXAS L. REV. 1, 10 (1959); Katz, *Tort Liability, supra* note 2, at 632; Keeton, *supra* note 3, at 406-13; Wade, *supra* note 2, at 243.

56. *See* note 45 *supra* and accompanying text.

57. This difference between manufacturing flaws and generically dangerous products is recognized in F. HARPER & F. JAMES, THE LAW OF TORTS 1558 (1956), although the authors do not develop it in the context of the limits of adjudication.

58. The C.C.H. Products Liability Reporter, which reproduces significant products liability decisions, has collected almost two thousand opinions since 1963. I estimate that at least one half of these cases involve generically dangerous products and that a significant number of these decisions sanction submission of the issues to the jury.

the number is increasing steadily.[59] Success in this endeavor depends initially upon the distinction drawn herein between inadvertent design errors and conscious design choices.[60]

Like most factual distinctions employed in legal analysis, this one consists of two polar opposites between which all examples of generically dangerous products may be ranged in a continuous spectrum.[61] At one end of the spectrum are risks of harm which originate in the inadvertent failure of the design engineer to appreciate adequately the implications of the various elements of his design, or to employ commonly understood and universally accepted engineering techniques to achieve the ends intended with regard to the product. At the other end of the spectrum are risks of harm which originate in the conscious decision of the design engineer to accept the risks associated with the intended design in exchange for increased benefits or reduced costs which the designer believes justify conscious acceptance of the risks. In cases involving liability for inadvertent design errors, the means employed to reach the intended ends are insufficient; in cases involving liability for conscious design choices, the intended ends themselves are out of step with prevailing social policies.

Inadvertent design errors are similar to manufacturing flaws in several respects. For one thing, both design errors and flaws are unintended. If the design errors or flaws were discovered, the manufacturer would presumably not market the particular products involved.[62] Moreover, both manufacturing flaws and inadvertent design errors tend to defeat the very purposes for which the products are produced and marketed. Just as a hairline flaw in

59. Not only is the absolute number of decisions involving generically dangerous products increasing, but the percentage these decisions represent of the total products liability decisions is also on the rise. Compared to the law governing manufacturing flaws, which is fairly settled, the law governing generically dangerous products is still very much in ferment. Therefore, these cases are demanding increasing attention from appellate courts.

60. Once again, I may be accused of mixing apples and oranges in my choice of terminology. *Cf.* note 36 *supra*. "Error" is obviously pejorative, while "choice" is not. I can only say that, once again, minor analytical shortcomings are outweighed by considerations of convenience and practical workability.

This distinction has not heretofore been employed as a means of explaining judicial behavior in cases involving generically dangerous products. In fact, the distinction itself has been recognized by surprisingly few commentators. The writer who comes closest to the distinction as I shall make it, and the one to whom I am indebted for the adjective "inadvertent," is Dorfman, *The Economics of Products Liability: A Reaction to McKean*, 38 U. CHI. L. REV. 92, 96 (1970). The concept of the "drawing board design error," advanced in Philo, *Automobile Products Liability Litigation*, 4 DUQ. L. REV. 181, 188 (1965), seems to approximate my "inadvertent design error."

61. The distinction here advanced is one based upon the sources in design from which the generic risks of harm originate, and does not directly concern itself with the way in which the marketing of a product subsequently increases or decreases those risks. The reasons for this emphasis upon the design process will become clear later. *See* text accompanying note 121 *infra*. Suffice it to say for now that it is the design issue—not the marketing issue—which threatens courts with polycentricity and, therefore, warrants attention at this juncture.

62. At least they would not be marketed unless they posed little risk of personal injury and were clearly labeled as "seconds." *See* F. HARPER & F. JAMES, THE LAW OF TORTS 1559 nn.7 & 8 (1956).

a soda bottle causes it to explode during intended use, rendering it useless as a container as well as physically dangerous, so the inadvertent design error of employing glass of insufficient thickness or strength to withstand intended use produces the same unhappy result.[63] And inadvertent design errors share with manufacturing flaws the tendency to be hidden from the user or consumer.[64] Finally, neither flaws nor inadvertent design errors are amenable to being made the subject of effective warnings in the marketing of the products.[65]

On the other hand, conscious design choices as sources of generically dangerous products present a marked contrast in almost every respect to both inadvertent design errors and manufacturing flaws. They are consciously intended and, for that reason, the risks that they generate are not so likely to interfere directly with the products' intended functions. Most often, the risks of harm are associated with other, unintended patterns of use. When the designer of a punch press consciously decides not to include a safety guard in his design, for example, the risk of harm created by this decision does not detract from (and in all likelihood adds to) the efficiency of the machine as a device for shaping metal. But the risk of harm detracts from the machine's efficiency as a relatively safe device near which inattentively to place one's hands—a situation clearly unintended by the product's designer.[66] Were the operator of the punch press to injure his hand, and a court subsequently to conclude that the machine's design is defective due to the lack of a safety guard,[67] the manufacturer would be held liable because the conscious choice to exchange increased risk of operator injury for increased efficiency of operation would be deemed unreasonable.[68]

Another difference is that the risks generated by conscious choices, unlike those generated by inadvertent design errors, are more likely to be obvious to users and consumers of the products. The absence of the safety

63. *See* W. PROSSER, LAW OF TORTS 659, n.68 (4th ed. 1971). It is precisely this similarity that has led some courts and commentors to the misleading generalization that there is no need analytically to distinguish between manufacturing flaws and product designs as sources of risks to consumers. *See* note 37 *supra.*

64. *See* note 48 *supra.*

65. Warnings could do no more than remind users of the fallibility of the design and manufacturing processes, and warn them of the *possibility* of unintended and undetectable risks of harm. Like disclaimers, such warnings would likely be misunderstood or ignored by the average consumer.

66. Plaintiffs have argued successfully that as long as the harmful use is foreseeable, defendant should be held liable for its occurrence, regardless of whether or not it was intended. *See* note 99 *infra.* However, I am not concerned here with the substantive merits of whether the responsibility of manufacturers should extend beyond intended use. Instead, I employ the concept of intended use to draw a distinction which relates to the institutional suitability of the courts to handle cases involving generically dangerous products.

67. *See* F. HARPER & F. JAMES, THE LAW OF TORTS 1540 (1956):

> Design or specification quite consciously and deliberately adopted may well lead (e.g. through oversight, miscalculation, or a desire to skimp costs) to a characteristic of the product having so little utility that most people would readily call it a "defect . . ."

68. *See* cases cited in note 145 *infra.*

guard on the punch press, for example, would presumably be known to—and the risks associated with its absence appreciated by—persons using the machine. And even if the risks were not obvious in some cases, they are more amenable than are risks generated by flaws or inadvertent design errors to being made the subject of effective warnings. Warnings could describe dangers which are actually present in the product purchased by the consumer and which may be discovered by the user prior to a harmful accident.[69]

2. The Courts' Handling of Inadvertent Design Errors. Inadvertent design error cases constitute a large percentage of the cases alleging manufacturer liability for generically dangerous products.[70] Courts have been able to handle these cases successfully without establishing their own product safety standards, and have thus been able to achieve substantial justice without confronting the essentially polycentric questions lurking behind the liability issue. The reason for this success is simple. Because of the self-defeating nature of inadvertent errors, the courts are able to delegate the establishment of specific design standards to the collective managerial authority of the engineering profession. Successful plaintiffs in these cases allege that the challenged product designs do not adequately conform to basic design standards developed and universally accepted by the engineering profession, and the courts adopt and apply those standards to determine the acceptability or defectiveness of the product designs.[71]

The adjudicability of these cases may readily be appreciated from a brief survey of the reported decisions. Not surprisingly, when aircraft manufacturers design aircraft that cannot fly,[72] or when—because of their designs—products suddenly and violently explode during normal use,[73] the courts

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69. Throughout the preceding discussion I have employed the terms "inadvertent" and "conscious" as factual descriptions of actual states of mind. Almost always, in cases representing clear instances of each category, such terms will accurately describe the states of mind of the designers involved. In the final analysis, however, the real test is objective rather than subjective: it is not what the particular designer actually knew or intended that matters, but what one may reasonably assume from the product itself that a rational designer must have intended. Stated in this more objective way, the distinction here advanced ultimately reduces itself to one between cases where a consensus exists regarding the unreasonableness of the design feature in question (cases where no rational person would deliberately choose to adopt such a feature and, therefore, where its adoption almost certainly must be the product of inadvertence), and cases where no such consensus exists (cases where rational persons might consciously and deliberately choose to adopt such a design feature).

70. Based upon my research in this area, I would estimate the figure at between twenty and twenty-five percent. More importantly, cases involving inadvertent design errors tend to be frequently invoked in support of the more general proposition that courts are ready, able and willing to review the reasonableness of product design. For example, section 398 of the RESTATEMENT (SECOND) OF TORTS, establishing a rather broad rule of manufacturers' liability for negligent design, relies entirely for its authority upon decisions involving inadvertent design errors.

71. *See* cases cited notes 72-89 *infra.*

72. *See, e.g.,* Noel v. United Aircraft Corp., 342 F.2d 232 (3rd Cir. 1964); United Aircraft Corp. v. Pan American World Airways, 57 Del. 322, 199 A.2d 758 (1964); Murray v. Bensen Aircraft Corp., 259 N.C. 638, 131 S.E.2d 367 (1963).

73. *See, e.g.,* Cross v. Carlisle & Co., 368 F.2d 947 (1st Cir. 1966) (dust disposal system in plywood plant); Moore v. Jewel Tea Co., 46 Ill. 2d 288, 263 N.E.2d 103 (1970)

have been able to impose liability without the necessity of establishing independent product safety standards. Similarly, when trusses,[74] ramps,[75] derricks,[76] roofs,[77] storage bins,[78] auto jacks,[79] cables,[80] grain elevators,[81] scaffolds,[82] ladders,[83] and other supportive mechanisms[84] collapse during normal use because of inadvertently designed-in weaknesses, or when structurally essential connective devices fracture for the same reason,[85] courts are successfully able to determine the question of liability without exceeding the limits of adjudication. The effortless way in which the problem of applicable standards seems almost to solve itself in these cases may also be observed in decisions where, because of their design, safety features become sources of danger[86] and foolproof devices become booby-traps;[87] or where brakes are designed so that they fail unexpectedly;[88] or where machines designed to move heavy cargo are so inherently unstable that they cannot be operated without tipping over.[89]

The feature of paramount importance shared by all of these cases is the degree to which they allow or, in fact, require the courts to delegate the task of establishing applicable safety standards to the collective managerial

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(can of drain cleaner); Zeringue v. Maxon Burner Co., Inc., 232 So. 2d 861 (La. App. 1970) (Hydrogen fluoride generator); Schwalbach v. Antigo Electric and Gas, Inc., 27 Wis. 2d 651, 135 N.W.2d 263 (1965) (home gas furnace).

74. *See, e.g.*, Audlane Lumber Supply, Inc. v. D.E. Britt Associates, Inc., 168 So. 2d 333 (Fla. App. 1964); Swaney v. Peden Steel Co., 259 N.C. 531, 131 S.E. 2d 601 (1963).

75. *See, e.g.*, Berry v. Fruehauf Trailer Co., 371 Mich. 428, 124 N.W.2d 290 (1963).

76. *See, e.g.*, Blohm v. Cardwell Mfg. Co., 380 F.2d 341 (10th Cir. 1967).

77. *See, e.g.*, Guffie v. Erie Strayer Co., 350 F.2d 378 (3d Cir. 1965).

78. *See, e.g.*, Crawfordsville Dehydrator Co. v. Wonder State Mfg. Co., 244 Ark. 703, 427 S.W.2d 20 (1968).

79. *See, e.g.*, Knudson v. Edgewater Automotive Division, 486 P.2d 596 (Mont. 1971).

80. *See, e.g.*, McComish v. DeSoi, 42 N.J. 274, 200 A.2d 116 (1964).

81. *See, e.g.*, Mobberly v. Sears, Roebuck & Co., 4 Ohio App. 2d 126, 211 N.E.2d 839 (1965).

82. *See, e.g.*, Preston v. Up-Right, Inc., 243 Cal. App. 2d 636, 52 Cal. Rptr. 679 (1966).

83. *See, e.g.*, Lifritz v. Sears, Roebuck & Co., 472 S.W.2d 28 (Mo. App. 1971); Wilson v. Lowe's Asheboro Hardware, Inc., 259 N.C. 660, 131 S.E.2d 501 (1963); Handrigan v. Apex Warwick, 275 A.2d 262 (R.I. 1971).

84. *See, e.g.*, Selmo v. Baratono, 28 Mich. App. 217, 184 N.W.2d 367 (1970) (bumper towing brackets on auto); Corbin v. Camden Coca-Cola Bottling Co., 60 N.J. 425, 290 A.2d 441 (1972) (soft drink carton).

85. *See, e.g.*, Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 501 P.2d 1153, 104 Cal. Rptr. 433 (1972) (hasps holding racks in bread truck); Farr v. Wheeler Mfg. Corp., 24 Mich. App. 379, 180 N.W.2d 311 (1970) (chain on pipe cutting machine).

86. *See, e.g.*, Wagner v. The Coronet Hotel, 10 Ariz. App. 296, 458 P.2d 390 (1969) (rubber bath mat slippery in middle); Rider v. Hartford Accident & Indemnity Co., 241 So. 2d 61 (La. App. 1970) (safety belt latch broke); Rooney v. S.A. Healy Co., 20 N.Y.2d 42, 228 N.E.2d 383, 281 N.Y.S.2d 321 (1967) (gas mask did not work).

87. *See, e.g.*, Haragan v. Union Oil Co., 312 F. Supp. 1392 (D.C. Ala. 1970) (automatic gas detection and alarm system failed); Marocco v. Ford, 7 Cal. App. 3d 84, Cal. Rptr. 526 (1970) (automatic gearshift in auto unexpectedly jumped from "park" to "reverse").

88. *See, e.g.*, Schield Bantum Co., Inc. v. Greif, 161 So. 2d 266 (Fla. App. 1964).

89. *See, e.g.*, Frankel v. Lull Engineering Co., Inc., 334 F. Supp. 913 (E.D. Pa. 1971), *aff'd per curiam*, 470 F.2d 995 (3d Cir. 1973); Robinson Roofing Co. v. Williamsen Idaho Equip Co., Inc., 94 Idaho 819, 498 P.2d 1292 (1972); Stark v. Allis-Chalmers, 2 Wash. App. 399, 467 P.2d 854 (1970).

authority of the engineering community. If the plaintiff can prove that conformance by the defendant manufacturer to customary engineering practices would have prevented the product failure, the defendant is liable for the harm caused.[90] From the self-defeating nature of the design defect in such a case, there is no further evaluative task required of the court beyond a determination that the design itself caused the product to fail during its intended use. In effect, the intended design serves as a standard with which to assess (and almost automatically condemn) the actual design. Therefore, the difficulties that these cases present do not involve establishing specific standards with which to determine defendants' responsibility for design-caused product failure but, rather, determining what caused the products to fail in the first place. These latter difficulties may be substantial,[91] but they do not present polycentric problems nor do they pressure the courts to exceed the limits of adjudication.

The only significant problem area remaining in products liability law, then, involves judicial handling of cases concerning conscious design choice. It is here that the courts are under the greatest pressures to exceed their institutional bounds.

III. The Judicial Struggle With Safety Standards in Cases Involving Conscious Design Choices

Cases involving conscious design choices present great social policy pressures to exceed the limits of adjudication. In a few instances, which have definable and predictable characteristics, courts have yielded to these pressures and have attempted to establish product safety standards. Most commentators accept these cases as proof of a growing judicial commitment to such an approach, and use them as the basis for predicting increasing judicial involvement in this direction in the future.[92] In the great majority of such cases, however, the courts have resisted pressures to establish independent standards, and the safer prediction is that they will continue to do so.

Most of the pressures upon courts to intervene in cases involving conscious design choices stem from the fact that here, in contrast to the cases

90. The question of whether the defendant's design should be judged according to engineering standards prevailing at the time of trial, even if those standards are higher than those prevailing at the time the product was originally sold, is an interesting one of substantive policy, but it is irrelevant to our present inquiry. *See, e.g.*, Ward v. Hobart Mfg. Co., 450 F.2d 1176 (5th Cir. 1971); Mondshour v. General Motors Corp., 298 F. Supp. 111 (D.C. Md. 1969). *See also* Restatement (Second) of Torts § 402A comment K. Whether or not the defendant is held to the later, higher standard, the courts are not required to establish their own independent design standards.

91. *See, e.g.*, Manos v. Trans World Airlines, Inc., 324 F. Supp. 470 (N.D. Ill. 1971), involving an airplane crash due to poorly designed thrust reversers. The district court describes a trial record containing hundreds of exhibits and makes seventy-six findings of fact which could serve as a technical manual on the subject. *See also* United Aircraft Corp v. Pan American World Airways, 57 Del. 322, 199 A.2d 758 (1964).

92. *See* authorities cited in note 2 *supra*. *See also* note 70 *supra*, regarding Restatement (Second) of Torts, § 398.

involving inadvertent design errors, the establishment of product safety standards necessitates the balancing of competing values. As the preceding analysis of inadvertent design errors indicates, the engineering standards by which the courts determine the existence of such errors reflect a consensus over the means appropriate to reach given ends. Reasonable men might differ over the ends to be pursued, but they presumably would not disagree significantly over the means.[93] In large measure it is the objectivity of the standards applied in such cases that facilitates the courts' delegating their establishment to the extrajudicial community of design engineers. Engineers may be entrusted with responsibility for working out solutions to engineering problems because, theoretically, they have no personal interests that may be uniquely affected by the decisions they reach.[94]

In cases involving conscious design choices, however, plaintiffs are not attacking the means to the ends, but the ends themselves; and the issue of whether those ends are justifiable entails the balancing of competing interests. Therefore, courts are understandably hesitant to delegate responsibility to an extrajudicial standard-setting process that may be prone to partiality or subject to abuse. Whether or not courts believe themselves to be institutionally suited to the task of establishing product safety standards, they are at least confident of their impartiality. There is, understandably, a great temptation for them to brush aside problems involving the limits of adjudication and to attempt to provide their own, impartial answers to the value questions raised in such cases. Although courts have generally resisted pressures to plunge, in the name of rendering impartial justice, into the polycentric task of establishing product safety standards, the great pressures for them to do so frame the problem of central importance to the present inquiry: How are the courts to respond to cases involving manufacturers' conscious design choices without enmeshing themselves in the unadjudicable task of establishing independent product safety standards?

A. *The Range of Possible Judicial Responses*

The possible approaches that the courts can use to resolve conscious design choice cases are essentially the same range of alternatives through which the courts traversed in resolving the earlier question of manufacturers' liability for flaws. The manufacturers can be found to have no duty to ensure against injuries caused by their design choices. They can be found to have a duty to make "reasonable" design choices, and be liable for injuries caused by "unreasonable" ones, a course in which the courts would have to adopt

93. *See* note 69 *supra.*

94. The assumed neutrality of engineering and technological standards is increasingly coming under attack. *See, e.g.*, Turner, *Corporate Responsibility And Product Safety,* 8 SAN DIEGO L. REV. 15, 22 (1971); *cf.* note 108 *infra.*

and apply product design standards. Or, lastly, they can be held absolutely liable for injuries caused by their design choices, no matter how reasonable. These three alternatives will be discussed in reverse order.

1. *Absolute Liability.* Imposing absolute liability on manufacturers for all harm caused by their product designs would, comparably to the strict liability approach in manufacturing flaw cases,[95] delegate responsibility for conscious design choices to the managerial authority of individual manufacturers. In the conscious design cases, however, the necessity of even a preliminary judicial finding of defectiveness would be eliminated. Because all products inevitably involve some generic risks of harm, all producers would be exposed to some liability and would become insurers against the risks of harm incident to the use of their products. Whatever may be said for or against the substantive policies supporting this approach, it would eliminate the necessity of passing judgment on the reasonableness of product designs and would allow the courts to avoid establishing product safety standards.[96] Moreover, it would preclude the possibility of competing parties in interest abusing the extrajudicial standard-setting process. To be sure, individual manufacturers would be allowed to establish and enforce their own product safety standards. But because the expense of all product-related accidents would be included in the costs of production, it would be to the manufacturers' own advantage to do the job well.[97]

Despite the institutional advantages it might hold, absolute manufacturers' liability has been unanimously and emphatically rejected by the courts. Even while upholding plaintiffs' judgments, appellate courts consistently reaffirm that manufacturers are not insurers with respect to the risks of harm associated with their conscious design choices, nor are they expected to adopt the safest possible product designs.[98] Even where the courts show a willingness to find liability for injuries caused by any reasonably foreseeable use of a given product,[99] liability will still be denied unless the product is also found to be unreasonably dangerous.[100]

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95. *See* note 52 and accompanying text *supra.*

96. It could be argued, however, that even the necessity of determining the causal relationship between product use and ensuing harm would place such an approach beyond the capacity of courts to implement. But in light of the universal rejection of the absolute liability approach, I have chosen not to pursue this point. *See* notes 98-100 and accompanying text *infra.*

97. Of course, legislatures would also continue to impose the values of the community upon manufacturers, removing various alternatives from control of the marketplace. *See* G. Calabresi, The Costs of Accidents 18-20 (1970).

98. *See, e.g.,* Badorek v. General Motors Corp., 11 Cal. App. 3d 902, 90 Cal. Rptr. 305 (1970); Dudley Sports Co. v. Schmitt, 279 N.E.2d 266 (Ind. App. 1972); South Austin Drive-In Theater v. Thomison, 421 S.W.2d 933 (Tex. Civ. App. 1967).

99. *See, e.g.,* Gardner v. Q.H.S., Inc., 448 F.2d 238 (4th Cir. 1971); Filler v. Rayex Corp., 435 F.2d 336 (7th Cir. 1970); Dunham v. Vaughan & Bushnell Mfg. Co., 42 Ill. 2d 339, 247 N.E.2d 401 (1969); Hood v. Formatron Corp., 488 P.2d 1281 (Okla. 1971). *But see* Evans v. General Motors Corp., 359 F.2d 822 (7th Cir. 1966); General Motors Corp. v. Howard, 244 So. 2d 726 (Miss. 1971).

100. *See, e.g.,* Colosimo v. May Dept. Store Co., 466 F.2d 1234 (3d Cir. 1972);

2. *Judicial Acceptance and Application of Design Standards.* Three possible sources of design standards will be considered here. Two of these sources—government regulation and industry custom—would allow the courts to avoid establishing design standards by themselves. The third—judicial determination—would directly involve the courts in the standard-setting task for which, it has been argued herein, they are institutionally unsuited.

(a) *Government Regulation.* In those cases in which the task of setting standards has already been accomplished by a governmental agency better suited than courts for such purposes, the courts have no difficulty in finding liability while avoiding establishing design standards. Where the conscious design choices of the defendant manufacturer fail to comply with specific requirements prescribed by statute or by administrative regulation, the court can adopt and apply the legislatively or administratively established standards.[101] Such a course defers to the judgment of governmental bodies that are presumed to be free from partiality or abuse. Of course, such deferrence can only occur after the legislature has decided on its own initiative to perform the standard-setting task. And courts have purported to accept legislatively established standards only as minimum standards, leaving open the question of whether products complying with them may nevertheless be defective.[102]

Notwithstanding these limitations upon the availability and usefulness of statutory and regulatory product safety standards, the fact remains that in cases where the product in question fails to meet such standards the courts can avoid the task of establishing their own tests.[103] The tremendous advantages that legislative and administrative bodies enjoy in answering the polycentric question of "How much design safety is enough?" Explain both their increasing involvement in establishing standards[104] and an increasing willingness of courts to accept those standards as determinative of the issue of manufacturers' responsibility for product design.[105] While

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Ward v. Hobart Mfg. Co., 450 F.2d 1176 (5th Cir. 1971); Hays v. Western Auto Supply Co., 405 S.W.2d 877 (Mo. 1966); Heaton v. Ford Motor Co., 248 Ore. 467, 435 P.2d 806 (1967).

101. *See* F. HARPER & F. JAMES, THE LAW OF TORTS 987-1014, 1590-92 (1956); W. PROSSER, LAW OF TORTS 190-204 (4th ed. 1971); James, *Statutory Standards and Negligence in Accident Cases,* 11 LA. L. REV. 95 (1950); Morris, *Role of Criminal Statutes in Negligence Actions,* 49 COLUM. L. REV. 21 (1949); Morris, *Role of Administrative Safety Measures in Negligence Actions,* 28 TEXAS L. REV. 143 (1949).

102. *See, e.g.,* Hubbard-Hall Chem. Co. v. Silverman, 340 F.2d 402 (1st Cir. 1965); Berkebile v. Brantly Helicopter Corp., 219 Pa. Super. 479, 281 A.2d 707 (1971). *See* F. HARPER & F. JAMES, THE LAW OF TORTS 1014 (1956); W. PROSSER, LAW OF TORTS 203-04 (4th ed. 1971).

103. Legislatures employ what Professor Fuller would prefer to as a mixture of managerial authority and contract negotiation. *See* text preceding and accompanying notes 22-24, *supra.*

104. *See* notes 174-182 and accompanying text *infra.*

105. Judicial acceptance of statutory standards as determinative of the negligence issue was a widely held position at one time. *See* Morris, Criminal Statutes, *supra* note 101, at 43 n.73. However, it appears to have given way somewhat to a tendency to allow juries to pass judgment on the reasonableness of defendants' conduct. *See* F. HARPER & F. JAMES, THE LAW OF TORTS 1014, n.66. My analysis strongly suggests a reversal of this tendency

ultimately deference to governmental standard-setting is the soundest course for the courts, it must be recognized that legislatures and agencies can never completely occupy the field of product design. Courts will continue to be under pressure to review the adequacy of manufacturers' conscious design choices in cases where no statutory or administrative standards are available; and they will not decline judicial review merely on the possibility that the legislature might thereby be coerced into action.[106] Thus, useful as deference to governmental standard-setting can be, such an approach is not sufficient to solve the problem of manufacturer liability for injury caused by conscious design choice.

(b) *Industry Custom.* This approach would also encourage courts to adopt and apply standards established extrajudicially, thus allowing them to pass judgment upon the acceptability of designs brought before them without forcing them to devise the tests to be applied. The industry custom standard would ascribe legal status to the design choices customarily made by a majority of manufacturers in the various categories into which specific products might conveniently be placed. Defendant manufacturers would be held liable where individual product designs were found to create greater risks of harm than are customarily created by designs in the same product categories.

Were the courts to adopt this second alternative, they would avoid establishing design standards by delegating responsibility for establishing such standards to the customary and collective process of contract negotiation in the marketplace, retaining judicial responsibility only for their enforcement. To the extent that industry custom regarding conscious design choices becomes codified in formalized industry codes,[107] the difficulties of proof in these cases would be eased and the judicial task would closely resemble that of applying statutes and regulations governing product design. To be sure, the sources of industry codes and standards are more susceptible to partiality and abuse than are the sources of statutory and regulatory standards, and for that reason doubts may be raised at the substantive policy level concerning the wisdom of looking to industry custom for the standards to be applied.[108]

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in the area of generically dangerous products. *See* Lewis v. Baker, 243 Ore. 317, 324, 413 P.2d 400, 404 (1966);

> We hold that . . . a drug, properly tested, labeled with appropriate warnings, approved by the Food and Drug Administration, and marketed properly under federal regulation, is, as a matter of law, a reasonably safe product.

See also Banko v. Continental Motors Corp., 251 F. Supp. 229 (D.C. Va. 1966). Apparently, the draftsmen of the National Traffic and Motor Vehicle Safety Act of 1966, 15 U.S.C. §§ 1381-1431 (1970), would agree with my conclusion that courts will be increasingly pressured to accept statutory standards as dispositive of the issue of manufacturers' liability. The draftsmen included in section 108(c) of the Act a provision expressly authorizing courts to impose products liability upon manufacturers notwithstanding compliance with regulations under the Act.

106. *See* H. HART AND A. SACHS, THE LEGAL PROCESS 396-97, 536-37 (1958).

107. For a recent descriptive summary of the more important of these industry codes and standard-setting procedures, *see* FINAL REPORT OF THE NATIONAL COMMISSION ON PRODUCT SAFETY 47-62 (1970).

108. *See* note 52 *supra.* THE REPORT OF THE NATIONAL COMMISSION ON PRODUCT

Moreover, in many instances, custom will not be available as a source for design standards.[109] But viewed strictly from the perspective of the limits of adjudication and within the limits of the availability of custom, it must be recognized that the industry custom approach would work perfectly well as a method by which courts can avoid establishing their own product design standards.

As with the absolute liability standard, however, this alternative too has been rejected by the courts. In addition to expressing their misgivings over possible partiality and abuse,[110] judges have shown concern over whether such an approach might tend to eliminate what is assumed to be worthwhile diversity of product design by pressuring manufacturers to make the same conscious design choices.[111] Evidence of industry custom is admissible in these cases[112] and presumably has an impact upon the decisions reached by judges[113] and juries,[114] but the courts have almost universally refused to adopt industry custom as the standard against which to determine the reasonableness of individual defendants' decisions affecting product safety.[115]

(c) *Judicial Determination of Design Standards.* Finally, if specific stan-

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SAFETY 62 (1970) reaches the following conclusions regarding industry self-regulation:

> In no standards procedure can it be said that consumers have a substantial voice. Rarely have they an effective veto. Safety itself has been a secondary consideration in the usual process of developing voluntary standards. The need for a consensus commonly waters down a proposed standard until it is little more than an affirmation of the status quo . . . .
>
> Dependence on industry financing and technical experts who are paid by industry as regular employees, consultants, or contractors tends to subordinate national interest to private ends . . . .

109. Because conscious design choices are made across a range of alternatives among which reasonable men might disagree, different manufacturers will tend to adopt different designs, and custom will be less available as a source of design standards. In contrast, custom will be much more readily available in cases involving inadvertent design errors, since the standards in those cases reflect a consensus over the means appropriate for reaching given ends. Because of the requirement that a consensus be reached as a prerequisite to the adoption of standards as part of formal industry codes, see note 108 *supra*, such codes will tend to relate more to cases involving inadvertent design errors than to cases involving conscious design choices.

110. *See, e.g.*, Moren v. Samuel M. Langston Co., 96 Ill. App. 2d 133, 146, 237 N.E.2d 759, 766 (1968); Witt v. Chrysler Corp., 15 Mich. App. 576, 581-83, 167 N.W.2d 100, 103-04 (1969); South Austin Drive-In Theatre v. Thomison, 421 S.W.2d 933, 949-51 (Tex. Civ. App. 1967).

111. *See, e.g.*, Posey v. Clark Equip. Co., 409 F.2d 560, 561-62 (7th Cir. 1969); Poppell v. Waters, 190 S.E.2d 815, 816-17 (Ga. App. 1972); Myers v. Montgomery Ward & Co., 253 Md. 282, 294, 252 A.2d 855, 863 (1969).

112. *See, e.g.*, Schaeffer v. Michigan-Ohio Navigation Co., 416 F.2d 217 (6th Cir. 1969); Sanders v. Western Auto Supply Co., 256 S.C. 490, 183 S.E.2d 321 (1971); Otis Elevator Co. v. Wood, 436 S.W.2d 324 (Tex. 1968). *See also* notes 153, 157, 164, 170 and 172, and accompanying text *infra*.

113. *See, e.g.*, Royal v. Black & Decker Mfg. Co., 205 So.2d 307 (Fla. App. 1967); Stovall & Co. v. Tate, 124 Ga. App. 605, 184 S.E.2d 834 (1971).

114. *See, e.g.*, Barnes v. Omark Indus., Inc., 369 F.2d 4 (8th Cir. 1966); Santiago v. Package Machinery Co., 123 Ill. App. 2d 305, 260 N.E.2d 89 (1970); Clohessy v. Felle, 36 App. Div. 2d 757, 319 N.Y.S.2d 547 (1971).

115. *See, e.g.*, Canifax v. Hercules Powder Co., 237 Cal. App. 2d 44, 46 Cal. Rptr. 552 (1965); Garst v. General Motors Corp., 207 Kan. 2, 484 P.2d 47 (1971); Murray v. Bullard Co., 110 N.H. 220, 265 A.2d 309 (1970). *See generally* Morris, *Custom and Negligence*, 42 COLUM. L. REV. 1147 (1942).

dards for conscious design choices are to be prescribed, the courts can prescribe them themselves. Such a response, one asserted from the outset to be institutionally inappropriate, would entail a continuing, case by case, independent review of the reasonableness of defendant manufacturers' conscious design choices. Assuming the validity of the hypothesis that adjudication is unsuited to answering the question of "How much design safety is enough?," it follows that a broad-scale judicial commitment to the independent review of conscious design choices would bring with it a very real threat to the integrity of the judicial process. Confronted with the hopeless difficulties of trying to redesign products via adjudication, and presumably unable to resist the social pressures generally favoring injured plaintiffs, courts would inevitably resort to some form of judicial coin-flipping, *i.e.*, they would begin to determine defendants' liability on some arbitrary basis rather than on the purported basis of the reasonableness of the product designs brought before them. Efforts to establish meaningful design standards would be abandoned in favor of allowing juries to determine defendants' liability upon no more substantial grounds than their own untutored "good judgment," or whim. The shift in the basis of manufacturers' liability would be disguised, consciously or otherwise, by heavy reliance upon the unsupported opinions of experts relating to the ultimate issue of the reasonableness of defendants' conscious design choices. The absence of any viable product safety standards with which to decide these cases, however, would be obvious even to the casual observer. In effect, the adjudicative process would largely become a sham. Although such tactics might render these cases manageable in the short run, they would do so at the cost of a serious erosion of confidence in the courts by those litigants who would correctly come to realize that they have been denied effective access to the adjudicative process by such subterfuge.

Notwithstanding these potential difficulties, recent decisions reveal some attempts by courts to judge the "reasonableness" of design, particularly in cases in which social policy seems to favor plaintiff's recovery and in which unreasonable design is the only available basis of liability, thereby making the standard-setting task unavoidable. These recent attempts at judicial standard-setting are the primary focus of this article and will be considered in depth below.

3. *No Duty* (*Failure to Warn*). The last possible judicial response to the problem presented by conscious design choices is to refuse altogether to impose liability upon defendant manufacturers based upon their choices. In effect, the courts would be adopting a variation of the no duty approach reflected in the pre-*MacPherson* manufacturing flaw cases,[116] thereby delegating to marketplace negotiations between the individual manufacturer and its customers full responsibility for determining "How much design safety is

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

enough?"[117] Just as the no duty-privity response in the early manufacturing flaw cases spared the courts the chore of passing judgment upon the reasonableness of defendant manufacturers' decisions relating to quality control, a no duty response in this situation would spare the courts the task of reviewing decisions relating to design safety.

Although, of course, the no duty-privity rule has been rejected in cases involving manufacturing flaws, the substantive policy reasons for that reversal do not apply with equal force to cases involving conscious design choices, and one may argue that the two types of cases are sufficiently different to render feasible in the latter the delegation to the marketplace of responsibility for deciding "How much design safety is enough?" Unlike manufacturing flaws, conscious design choices tend to be readily apparent to the product's purchaser. Typically, the risks that they create are not hidden and, in fact, may often play a significant role in the consumer's decision to purchase the product.[118]

Instead of liability for their design choices, courts using this approach have developed a different kind of duty to impose on manufacturers. Since the kinds of risks created by conscious design choices are likely to be understood by consumers, and can be minimized by careful patterns of use, courts have simply imposed upon manufacturers a duty to warn purchasers of risks that might not otherwise be obvious.[119] Unlike attempts to warn of inadvertent design errors,[120] warnings of conscious choices are useful. They describe design features that could be discovered by users of the product, and can be couched in the much more meaningful language that risks are, not merely may be, created by the product about to be used.[121]

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117. Of course, to the extent that an imbalance in bargaining power exists between manufacturers and their customers, the process of negotiation will be replaced by the exercise of managerial authority by the manufacturer. *Cf.* note 24 *supra.*

118. The classic example is the purchase of a knife, the sharpness of which not only creates obvious risks of harm but makes the product useful and attractive to the purchaser.

119. This discussion uses the warning terminology as efficient shorthand to refer to the broader subject of the manufacturer's responsibilities *re* the marketing of its products, including not only warnings but also instructions, directions for use, etc.

120. *See* note 65 and accompanying text *supra.*

121. Such a warning requirement raises a basic question relating to the limits of adjudication, namely, would not the imposition upon manufacturers by courts of a general duty reasonably to warn of such risks confront the courts with the polycentric task of establishing specific standards with which to judge the adequacy of defendants' efforts to warn? Clearly, the preliminary decision regarding the relative obviousness of the risks would not, but what of the decision regarding the reasonableness of the efforts to warn? Professor Fuller, upon whose development of the concept of polycentricity this article is based, has addressed himself to this question in a somewhat broader context than merely the imposition of a duty to warn:

> [T]here is no better illustration of a polycentric relationship than an economic market, and yet the laying down of rules that will make a market function properly is one for which adjudication is generally well suited.

Fuller, *Adjudication and the Rule of Law, supra* note 18, at 4. Thus, it is likely that Fuller would answer the preceding question as follows: "No. The imposition of a duty to warn would be part of the 'laying down of rules that will make a market function properly,' and therefore would be amenable to adjudication." However, it is important to observe that this conclusion is proper only if it is assumed that the courts will commit

From the present perspective of the limits of adjudication, at least, the combined no duty-failure to warn rule is probably the soundest judicial approach to any case in which there are no governmental standards upon which to rely. The courts can delegate conscious design choices to the process of contract negotiation in the marketplace while undertaking to maintain the integrity of that process by imposing upon manufacturers a continuing duty to warn. Accordingly, the manufacturer escapes legal responsibility for all conscious design choices to the extent that the risks involved in such choices were either reasonably obvious or made the subject of adequate warnings.

This no duty-failure to warn approach is not an automatic bar to recovery by injured plaintiffs, nor does it prevent courts from reacting on an individualized basis in cases involving manufacturers' conscious design choices. Courts can review these cases to determine whether adequate warnings had been given to consumers, and manufacturers can be held liable where warnings are found to be inadequate. Liability would not be imposed, however, because the design choices themselves were unreasonable, but because the defendant manufacturers failed to warn of hidden risks created by those choices. Of course, one may raise doubts on grounds of substantive policy as to the adequacy of a judicially imposed duty to warn as a means of protecting the interests of consumers and maintaining the integrity of negotiations in the marketplace,[122] but it must be recognized that the no duty-failure to warn approach permits the courts to impose a rational pattern of liability in cases involving manufacturers' conscious design choices without requiring them to establish independent design standards.

The advantages of this approach are highlighted by the failures or inadequacies of the alternate approaches outlined above. Thus, it is no surprise that, with relatively few exceptions, courts have adopted the no duty-failure to warn response to handle conscious design choice cases. Where the risks

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themselves to a rule of full disclosure regardless of what might be described as indirect or secondary costs or consequences of such disclosure. For example, were the courts to begin to consider the costs of making such disclosure, *e.g.*, the negative impact upon the marketability of products or the expense involved in making them, the problems presented would become exceedingly polycentric.

A close analogy to this issue of the manufacturer's duty to warn is found in the physician's duty to inform his patients of the risks incident to medical treatment. Courts have either delegated to the medical profession the responsibility for deciding whether to inform patients of particular risks, or they have insisted upon full disclosure regardless of secondary considerations, such as frightening the patient. *See* W. PROSSER, LAW OF TORTS 165-66 (4th ed. 1971); Plante, *An Analysis of "Informed Consent,"* 36 FORDHAM L. REV. 639 (1968); Waltz & Scheuneman, *Informed Consent to Therapy*, 64 NW. U.L. REV. 628 (1970). For a recent decision insisting upon full disclosure and refusing to delegate the "all things considered" judgment to the medical profession, *see* Canterbury v. Spence, 464 F.2d 772 (D.C. Cir. 1972).

122. Consumers may not be able to understand the warnings adequately or appreciate the risks involved. Moreover, they may be peculiarly powerless to act effectively in response to warnings. For a general treatment of both of these limitations and their implications, *see* FINAL REPORT OF THE NATIONAL COMMISSION ON PUBLIC SAFETY 63-72 (1970). *See* notes 148-150, 171, *infra.*

associated with defendant's designs are obvious,[123] or where defendants have given adequate warnings,[124] the courts have almost always refused recovery based upon allegations that the defendants' conscious design choices are unreasonable.[125] Some courts explain their refusal to allow recovery in such cases in terms of products having been misused in the face of obvious risks of harm;[126] other courts define the manufacturers' duty to be one of avoiding hidden or latent dangers.[127] Still others stress the point that manufacturers are not insurers against all risks of harm inherent in their product design.[128] Regardless of the particular form of judicial reasoning, the critical elements in all of these cases are (1) the obviousness of the risks and (2) the courts' conclusion that consumers should bear the responsibility with regard to them. The only cases involving conscious design choices in which plaintiffs ordinar-

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123. *See, e.g.*, Morrow v. Trailmobile, Inc., 12 Ariz. App. 578, 473 P.2d 780 (1970) (plaintiff crushed between two cargo vehicles while attempting to hitch one to the other; risk of standing between moving vehicles obvious); Fanning v. LeMay, 38 Ill. 2d 209, 230 N.E.2d 182 (1967) (plaintiff fell on wet asphalt tile floor; slipperiness of shoe soles on wet floor obvious); Blankenship v. Morrison Mach. Co., 255 Md. 241, 257 A.2d 430 (1969) (plaintiff caught hand between exposed squeeze roller and drum of sanforizing machine; risk to hand was obvious); Parsonson v. Construction Equip. Co., 386 Mich. 61, 191 N.W.2d 465 (1971) (plaintiff injured in explosion when he opened gas tank in close proximity to extremely hot engine; risk of explosion obvious).

124. *See, e.g.*, Helene Curtis Indus., Inc. v. Pruitt, 385 F.2d 841 (5th Cir. 1967), *cert. denied*, 391 U.S. 913 (1968) (plaintiff's scalp burned by non-professional application of bleaching and coloring products; defendant's product sold "For Professional Use Only—Not for Public Sale"); Stovall & Co. v. Tate, 124 Ga. App. 605, 607, 184 S.E.2d 834, 836 (1971) (plaintiff injured by stone thrown by rotary mower; mower accompanied by warning: "Remove all stones, wire, and other foreign objects from your lawn *before* starting to mow").

125. *But see* notes 145-47, 152, and accompanying text *infra*.

126. *See, e.g.*, Schemel v. General Motors Corp., 384 F.2d 802, 805 (7th Cir. 1967) (plaintiff struck by speeding automobile; manufacturer "not bound to anticipate and guard against grossly careless misuse of his product"); Lewis v. Stran-Steel Corp., 6 Ill. App. 3d 142, 149, 285 N.E.2d 631, 635 (1972) (plaintiff injured when struck by heavy steel sheets that fell off a forklift truck; "it was the mishandling, not the product, which caused the harm"); Hays v. Western Auto Supply Co., 405 S.W.2d 877, 884 (Mo. 1966) (three-year-old plaintiff injured when eight-year-old brother backed over him with ride-em mower; "[t]he cause of the injury was not the lack of a guard, but rather the misuse of the machine").

127. *See, e.g.*, Kerber v. A.M.F. Co., 411 F.2d 419, 421 (8th Cir. 1969) (plaintiff injured when hand caught in chain and sprocket of bakery machine; "there was no latent defect or concealed danger"); Bennett v. International Shoe Co., 275 Cal. App. 2d 797, 799, 80 Cal. Rptr. 318, 320 (1969) (plaintiff injured when he fell down stairs wearing new shoes; "the condition of the soles . . . was not a hidden or latent defect or one of which [plaintiff] was not aware"); Burkhard v. Short, 28 Ohio App. 2d 141, 149, 275 N.E.2d 632, 637 (1971) (plaintiff automobile passenger injured in accident when face struck unpadded dashboard; "the manufacturer has no duty to the passenger injured by contact with an obviously unpadded [dashboard]").

128. *See, e.g.*, Morrow v. Trailmobile, Inc., 12 Ariz. App. 578, 580, 473 P.2d 780, 782 (1970) (plaintiff crushed between two cargo vehicles while attempting to hitch one to the other; "the manufacturer of a product is not '. . . an insurer that his product is . . . incapable of producing injury.'"); Garst v. General Motors Corp., 207 Kan. 2, 20, 484 P.2d 47, 61 (1971) (plaintiff injured when struck by huge earth moving machine; "a manufacturer . . . is not an insurer that its product . . . be accident-proof or incapable of producing injury"); Edgar v. Nachman, 37 App. Div. 2d 86, 88, 323 N.Y.S.2d 53, 55 (1971) (plaintiff operator injured when his automobile burst into flames following head-on collision; "[the manufacturer] is not required to make a machine that is accident proof").

ily succeed in reaching the jury are those in which the risks are hidden and the warnings are inadequate.[129]

B. *The Tension Between Unreasonable Design and Failure to Warn*

One might have assumed that the factors giving rise to manufacturers' liability in these cases have been demonstrated beyond dispute by the pattern of judicial decisions. Whenever plaintiffs have recovered, they have almost always established defendants' failure to warn of hidden risks; and whenever plaintiffs have not established a failure to warn, they have almost always been denied recovery as a matter of law. Nevertheless, confusion regarding the effective basis of liability has been generated by a tendency to treat some cases involving defendants' failure to warn of hidden design risks as though they present the separate issue of unreasonable design. Juries are often given the separate issue of unreasonable design as an alternative ground for recovery in cases involving hidden risks,[130] and many commentators accept such treatment as proof of a widespread judicial commitment to the establishment of independent design standards.[131]

In these cases the courts typically find the defendant's product to be defective not only because it fails to meet minimum standards of reasonable design, but also because it is not accompanied by adequate warnings of the risks associated with its design. I suggest that whenever a court takes this approach to a case involving conscious design choices, a decision for the plaintiff neither requires the establishment of independent design standards nor supports an implication that such standards have in fact been established. That is, whenever the theories of unreasonable design and failure to warn are combined as alternative grounds for recovery, the latter theory undercuts the former and effectively displaces it as the basis of liability. This is so because the issue of unreasonable design is open-ended, polycentric and relatively difficult,[132] while, in contrast, the issue of defendant's failure to warn is focused and relatively easy.

129. *See, e.g.*, Long v. Burdette Mfg. Co., 460 F.2d 448 (4th Cir. 1972) (plaintiff injured when she caught heel on sharp under edge of bottom steel shelf of library cart); Wright v. Creative Corp., 498 P.2d 1179 (Colo. App. 1972) (young boy injured when he ran into plate glass sliding door believing it to be open); Dudley Sports Co. v. Schmitt, 279 N.E.2d 266 (Ind. App. 1972) (high school student injured in locker room by cocked throwing arm of pitching machine which appeared to be inoperative); McCormack v. Hankscraft Co., 278 Minn. 322, 333, 154 N.W.2d 488, 497 (1967) (young girl burned when hot water vaporizer accidentally spilled on her; "the jury could . . . conclude that . . . a substantial number of users would not become aware of the scalding temperature of the water nor realize the potential dangers"); Morris v. Shell Oil Co., 467 S.W.2d 39 (Mo. 1971) (plaintiff injured when caustic solvent came into contact with her hands).

130. *See, e.g.*, Kaczmarek v. Mesta Mach. Co., 463 F.2d 675 (3d Cir. 1972); Dudley Sports Co. v. Schmitt, 279 N.E.2d 266 (Ind. Ct. App. 1972); McCormack v. Hankscraft Co., 278 Minn. 322, 154 N.W.2d 488 (1967); Dixon v. Outboard Marine Corp., 481 P.2d 151 (Okla. 1970); Degen v. Bayman, 200 N.W.2d 134 (S.D. 1972).

131. *See* authorities cited in note 2 *supra*.

132. *See, e.g.*, Gray v. General Motors Corp., 434 F.2d 110 (8th Cir. 1970) (four weeks of trial; 3000 pages of transcript; trial court properly "permitted defendant's

Moreover, the reasonable design and failure to warn issues are extremely difficult to separate conceptually. Regardless of whether an extraordinary jury, given the opportunity, could succeed in keeping these issues separate and distinct during its deliberations and ultimately choose to base liability upon the more difficult ground of defendant's conscious design choices, it is extremely unlikely that the trial court will, in the first instance, succeed in presenting the issues separately in its instructions. For the issue of unreasonable design to be given to the jury to decide, it must be presented in a way that requires the jury to determine the reasonableness of the defendant's conscious design choices at the time they were made, regardless of how the product may have subsequently been marketed. Therefore, the focus must not be upon whether the risks were hidden or warnings actually given but, rather, upon whether the design risks were inherently susceptible to being made reasonable by adequate warnings. Only when the jury concludes that the defendant manufacturer designed its product in such a way that adequate warnings were impossible can the jury actually be said to decide that the design was inherently unreasonable.[133] Once the court invites the jury to consider whether the defendant adequately warned of the risks associated with its conscious design choices, the unreasonable design issue is almost invariably transformed into the issue of failure to warn.[134] Only in the relatively remote forums of appellate review and scholarly commentary, sufficiently removed from the realities of witnesses and juries, will the issues in combination appear to retain their separate identities.[135]

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experts to testify with regard to the technological developments, based on extensive experimentation concerning crash mechanics and occupant kinematics, which ultimately made feasible energy-absorbing steering columns . . . ."). *See also* Alexander v. Seaboard Air Line R.R. Co., 346 F. Supp. 320, 327 (W.D.N.C. 1971):

> Must [defendant] foresee and design a vehicle to withstand a collision with a 114-ton locomotive engine pulling a freight train travelling at 45 miles per hour? Must the gas tank be in front or in the rear? Can a fire-proof and crash-proof automobile be designed so long as gasoline is the fuel to be used? Must automobiles become tank-like vehicles? . . . These questions point up the problems which arise when the courts depart from the well-traveled paths and open up Pandora's Box.

133. *Cf.* Keeton, *supra* note 3, at 399:

> A product should not be regarded as an inherently bad product—an unreasonably dangerous product per se—unless there is safety legislation prohibiting the sale of the product, or a reasonable person with full knowledge of all the risks and dangers involved in its use would not market the product under any circumstances or conditions.

134. *See* Keeton, *supra* note 3, at 402:

> I suggest . . . that the issue of the adequacy of the information supplied cannot be separated from the issue of whether the product as marketed was unreasonably dangerous or unfit . . . .

See also Noel, *supra* note 2, at 48, 49:

> Since insufficient directions or warnings are a matter which can be corrected, the courts are more inclined to allow a negligence finding on this ground than on the ground that the design itself presents an unreasonable danger.

135. A good example of this may be found in the opinion of the New Jersey Supreme Court in Bexiga v. Havir Mfg. Corp., 60 N.J. 402, 411, 290 A.2d 281, 286 (1972), where the court assumes that the issues will be taken up individually by the jury, starting with the more difficult:

Nonetheless, there are occasions when a court does indeed find liability solely on an unreasonable design theory. These are cases where no further warnings by the defendant could have reduced the risks of harm to the plaintiff; either the risks are obvious enough to render warnings superfluous, or the defendant has already supplied all feasible warnings. In arguing that legally sufficient warnings are inherently impossible and, therefore, that the design is unreasonable, the plaintiff is, in effect, attempting to show that the process of negotiation in the marketplace has broken down because of plaintiff's foreseeable inability to assess the risks of harm or to cope with them in such a way as to avoid serious injury.[136] Whenever courts are confronted with persuasive evidence that such breakdowns have occurred, they may be pressured into passing independent judgment upon the reasonableness of defendant manufacturer's design choices in order to afford plaintiffs the protection that ordinarily would have been supplied by the marketplace.

But, until fairly recently, such cases have occurred only rarely. Even where it is clear that the injured plaintiff had little opportunity to react to warnings so as to avoid injury,[137] courts have continued to find liability on the failure to warn theory. And consistent with the foregoing analysis, courts have usually explained their conclusions in language unmistakably rooted in the premise that the defendant owed no duty to avoid the design risks of which the plaintiff complained.[138] Only rarely and in the clearest cases of the plaintiff's inability to avoid injury have courts ventured to review the defendant manufacturer's conscious design choices.[139]

Beginning in the late 1960's, however, a few courts in unusual cases have abandoned the failure to warn standard and have purported to stand ready to impose liability based solely and explicitly upon the defendant manufacturer's

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If the jury should find for the defendant on the issue of the defective or negligent design of the machine, the next question for it should be whether the defendant was negligent in failing to attach to the machine a suitable warning to the operator of the danger of using it without a protective device.

136. These alternative inabilities are, of course, mirror opposites of the capacities described in the test for strict liability advanced by Professors Calabresi and Hirschoff. *See* note 17 *supra.*

137. *See, e.g.,* Stovall & Co. v. Tate, 124 Ga. App. 605, 184 S.E.2d 834 (1971), affirming summary judgment for defendant where plaintiff, sitting some distance away in a school classroom, was struck in the eye by a rock catapulted by an allegedly negligently designed lawn mower; Lewis v. Stran-Steel Corp., 6 Ill. App. 3d 142, 285 N.E.2d 631 (1972), reversing jury verdict for plaintiff and entering judgment for defendant where unaware plaintiff was struck from behind by steel panels which spilled from an allegedly negligently designed fork lift.

138. *See, e.g.,* Maas v. Dreher, 10 Ariz. App. 520, 460 P.2d 191 (1969); Blankenship v. Morrison Mach. Co., 255 Md. 241, 257 A.2d 430 (1969); General Motors Corp. v. Howard, 244 So. 2d 726 (Miss. 1971); Bartkewich v. Billinger, 432 Pa. 351, 247 A.2d 603 (1968). *See also* cases cited note 137 *supra.*

139. Plaintiffs were most successful in cases involving highly flammable clothing. Although talk of defendant's failure to warn appears in the opinions, the sweater or nightgown that explodes at the touch of a match or cigarette would probably be found unreasonable quite apart from warnings regarding its flammability. *See, e.g.,* Ringstad v. I. Magnin & Co., 39 Wash. 2d 923, 239 P.2d 848 (1952); Noone v. Fred Perlberg, Inc., 294 N.Y. 680, 60 N.E.2d 839 (1945).

failure to meet judicially imposed standards of reasonable design.[140] It has become fashionable to downgrade the process of marketplace negotiation as an appropriate means of arriving at compromises among competing interests,[141] and these cases unquestionably reflect a general weakening of judicial confidence in marketplace decisions. The impression conveyed by most commentators is that the last artificial barriers to full manufacturers' liability are falling and that a sweeping extension of judicial review of product design is underway which will increasingly occupy the attention of courts in the future.[142] But as the analysis up to this point has demonstrated, the first part of this impression, at least, is wrong. From the perspective of institutional limits of adjudication, these barriers to liability for unreasonable design are far from artificial and serve the important function of insulating courts from the difficulties of trying to establish product safety standards.

C. *Judicial Review of Conscious Design Choices: A Survey of Cases*

Turning to the decisions themselves, perhaps the most significant observation is that in only a relative handful of cases have courts departed from the no duty-failure to warn tradition.[143] In the great majority of recent cases, courts have refused to allow juries to pass independent judgment upon the adequacy of defendants' conscious design choices.[144] Moreover, closer examination of those cases in which independent review of conscious design choices has been sanctioned reveals patterns that support the hypothesis that courts are inherently ill-suited to establishing product safety standards. Well over half of these cases fall into two product categories, heavy industrial machinery[145] and automobiles.[146] If power lawn mowers are considered,[147]

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140. The leading recent case is Pike v. Frank G. Hough Co., 2 Cal. 3d 465, 467 P.2d 229, 85 Cal. Rptr. 629 (1970). *See also* cases cited notes 145-47, 152 *infra.*

141. *See, e.g.*, Green, *Technology Assessment and the Law*, 36 GEO. WASH. L. REV. 1033 (1968); Keeton, *supra* note 3. *Cf.* notes 48 and 49 *supra. But see* McKean, *supra* note 3, at 59-60.

142. *See* authorities cited note 2 *supra.*

143. Of the thousands of products liability decisions reported during the last ten years, and of the hundreds of cases involving defendant manufacturers' conscious design choices, I have found only sixty-odd reported decisions which truly represent judicial departures from the no duty-failure to warn tradition, i.e., decisions in which failure to warn was not an available ground for liability and in which appellate courts have sanctioned sending the issue of the unreasonableness of defendants' conscious design choices to the jury. And of these sixty-odd decisions, only a dozen or so actually represent appellate courts affirming plaintiffs' judgments on appeal. As the following analysis will demonstrate, these cases do not reflect a general shift in judicial attitudes towards reviewing conscious design choices so much as they reflect unusual pressures generated by the peculiar facts of these cases. These decisions for the most part represent unusual circumstances in which the conclusion might be reached that even an inadequate judicial response is preferable to no governmental response at all.

144. *See* cases cited notes 123, 124, 126-29 *supra* and accompanying text.

145. *See* Wirth v. Clark Equipment Co., 457 F.2d 1262 (9th Cir. 1972), Elder v. Crawley Book Mach. Co., 441 F.2d 771 (3d Cir. 1971); Green v. Sanitary Scale Co., 431 F.2d 371 (3d Cir. 1970); Zahora v. Harnischfeger Corp., 404 F.2d 172 (7th Cir. 1968); Dazenko v. James Hunter Mach. Co., 393 F.2d 287 (7th Cir. 1968); Wheeler v. Stand. Tool & Mfg. Co., — F. Supp. — (S.D.N.Y. 1973); Powell v. E.W. Bliss Co., — F. Supp. — (W.D. Mich. 1972); Dorsey v. Yoder Co., 331 F. Supp. 753 (E.D. Pa. 1971), *aff'd,*

the three categories together account for more than eighty percent of the recent cases involving independent judicial review of product design. The concentration of judicial activity in these areas supports the hypothesis that the courts respond in this manner only where the pressures are greatest. All three product categories are accompanied by persuasive indications that the marketplace is inadequate to protect the interests of consumers.

In cases involving harm caused by heavy industrial machinery, by far the largest single category in which courts have reviewed design safety, the plaintiffs are typically employees of corporate purchasers injured on the job because of machinery designs that allegedly contain inadequate safeguards. The courts are presented with the image of the "little man" caught in the squeeze between the corporate giants that buy and sell heavy industrial machinery and forced to expose himself to patently unreasonable risks of harm in order to earn a sufficient wage.[148] Similarly, cases involving allegedly

474 F.2d 1339 (3d Cir. 1973); Pike v. Frank G. Hough Co., 2 Cal. 3d 465, 467 P.2d 229, 85 Cal. Rptr. 629 (1970); Smith v. Dhy-Dynamic Co., 31 Cal. App. 3d 852, 107 Cal. Rptr. 907 (1973); Gelsumino v. E.W. Bliss Co., 10 Ill. App. 3d 604, 295 N.E.2d 110 (1973); Balido v. Improved Machinery, Inc., 29 Cal. App. 3d 633, 105 Cal. Rptr. 890 (1972); Rivera v. Rockford Mach. & Tool Co., 1 Ill. App. 3d 641, 274 N.E.2d 828 (1971); Moren v. Samuel M. Langston Co., 96 Ill. App. 2d 133, 237 N.E.2d 759 (1968); Jennings v. Tamaker Corp., 42 Mich. App. 310, 201 N.W.2d 654 (1972); Byrnes v. Economic Mach. Co., 41 Mich. App. 192, 200 N.W.2d 104 (1972); Higgins v. Paul Hardeman, Inc., 457 S.W.2d 943 (Mo. Ct. App. 1970); Finegan v. Havor Mfg. Corp., 60 N.J. 413, 290 A.2d 286 (1972); Pizza Inn, Inc. v. Tiffany, 454 S.W.2d 420 (Tex. Ct. Civ. App. 1970); Brown v. Quick Mix Co., 75 Wash, 2d 833, 454 P.2d 205 (1969); Palmer v. Massey-Ferguson, Inc., 3 Wash. App. 508, 476 P.2d 713 (1970). It should be noted that only seven of these cases actually represent plaintiff's judgments affirmed on appeal.

146. *See* Passwaters v. General Motors Corp., 454 F.2d 1270 (8th Cir. 1972); Gray v. General Motors Corp., 434 F.2d 110 (8th Cir. 1970); General Motors Corp. v. Muncy, 367 F.2d 493 (5th Cir. 1966); Grundmanis v. British Motor Corp., 308 F. Supp. 303 (E.D. Wis. 1970); Dyson v. General Motors Corp., 298 F. Supp. 1064 (E.D. Pa. 1969); Menchaca v. Helms Bakeries, Inc., 68 Cal. 2d 535, 439 P.2d 903, 67 Cal. Rptr. 775 (1968) (bakery truck); Culpepper v. Volkswagen of America, Inc., — Cal. App. 3d —, 109 Cal. Rptr. 110 (1973); Badorek v. General Motors Corp., 11 Cal. App. 3d 902, 90 Cal. Rptr. 305 (1970); DeFelice v. Ford Motor Co., 28 Conn. Supp. 164 (Super. Ct. 1969); Brandenburger v. Toyota Motor Sales, U.S.A., Inc., — Mont.—, 513 P.2d 268 (1973); Bolm v. Triumph Corp., 41 App. Div. 2d 54, 341 N.Y.S.2d 846 (1973) (motorcycle).

147. *See* Eshbach v. W.T. Grant's & Co., Civil No. 71-2128 (3d Cir. June 15, 1973); Vroman v. Sears, Roebuck & Co., 387 F.2d 732 (6th Cir. 1967); Swearngin v. Sears Roebuck & Co., 376 F.2d 637 (10th Cir. 1967); Wilson v. American Chain & Cable Co., 364 F.2d 558 (3d Cir. 1966); Wilson v. Savage Arms Corp., 305 F. Supp. 1163 (E.D. Pa. 1969); Sills v. Massey-Ferguson, Inc., 296 F. Supp. 776 (N.D. Ind. 1969); Lunt v. Brady Mfg. Corp., 13 Ariz. App. 305, 475 P.2d 964 (1970) (crop-chopper); Clark v. Sears, Roebuck & Co., 254 So. 2d 62 (La. Ct. App. 1971); Blake v. Roy Webster Orchards, 249 Ore. 348, 437 P.2d 757 (1968) (brush cutter); Sanders v. Western Auto Supply Co., 256 S.C. 490, 183 S.E.2d 321 (1971); South Austin Drive-In Theatre v. Thomison, 421 S.W.2d 933 (Tex. Ct. Civ. App. 1967); Howes v. Hansen, 56 Wis. 247, 201 N.W.2d 825 (1972).

148. I do not intend to imply that this picture is necessarily accurate, but simply that it aparently exists in many judges' minds. Two recent appellate decisions in Michigan clearly reflect this judicial concern for plaintiff-employees. In Byrnes v. Economic Machinery Co., 41 Mich. App. 192, 202-03, 200 N.W.2d 104, 109 (1972), the court observed that

> Plaintiff worked in a place of possible danger on a machine controlled by another. He was aware of the dangers, but had no alternative open to him which would have lessened the risks.

And in Jennings v. Tamaker Corp., 42 Mich. App. 310, 316, 201 N.W.2d 651, 654 (1972), the court said:

defective automobile designs, the next largest category, present some of the most persuasive indications of marketplace breakdown. Perhaps more than any other consumer product, automobiles tend to injure non-purchasers and non-users, persons whose interests may not sufficiently be taken into account in marketplace negotiations.[149] And the risks of harm associated with automobile design may be especially difficult for the average purchaser to assess adequately.[150] Combining these factors with the traditional fears regarding the power of automobile manufacturers and the lack of competition in the automotive industry,[151] it is not surprising that courts are under considerable pressure to intervene on behalf of the victims of allegedly unreasonable automobile design. And the same things, basically, may be said concerning the rest of the cases in which courts have decided to engage in the independent review of product design.[152]

A close examination of these unusual cases of judicial review of conscious design choices reveals support for the hypothesis that courts are unsuited to establishing product safety standards. In almost all of them rational techniques were available to render the judgmental tasks more manageable. In cases

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> An operator . . . must operate the machine manufactured by defendant standing with a dangling left arm in the vicinity of a closing door capable of amputating that arm. Considering the foreseeable nature of human inattentiveness in light of the tediousness of this machine's operation . . . , the injury suffered by plaintiff herein was foreseeable.

See also Wirth v. Clark Equipment Co., 457 F.2d 1262 (9th Cir. 1972), *cert. denied*, 409 U.S. 876 (1972); Pike v. Frank G. Hough Co., 2 Cal. 3d 465, 467 P.2d 229, 85 Cal. Rptr. 629 (1970); Higgins v. Paul Hardeman, Inc., 457 S.W.2d 943 (Mo. Ct. App. 1970); Brown v. Quick Mix Co., 75 Wash. 2d 833, 454 P.2d 205 (1969). I strongly suspect that another reason for the courts' concern, which does not find its way into the opinions, is the fact that employees are universally barred from recovering from their employer under applicable workmen's compensation laws.

149. According to the National Safety Council, there were 55,200 traffic deaths in this country in 1968. Of these, 9,800 or almost eighteen percent, were pedestrians. *See* NATIONAL SAFETY COUNCIL, ACCIDENT FACTS 42, 75 (1969). That automobiles tend harmfully to affect nonpurchasers and nonusers has been recognized by the courts. *See, e.g.*, Caruth v. Mariani, 11 ARIZ. App. 188, 190, 463 P.2d 83, 85 (1970), where, justifying an extension of the manufacturer's liability to a nonpurchaser bystander, the court concluded: "[A]t least the consumer or user when buying an automobile has a chance to 'kick the tires.'" *See also* Elmore v. American Motors Corp., 70 Cal. 2d 578, 586, 451 P.2d 84, 89, 75 Cal. Rptr. 652, 657 (1969); Mitchell v. Miller, 26 Conn. Supp. 142, 148-50, 214 A.2d 694, 697-98 (Super. Ct. 1965); Lamendola v. Mizell, 115 N.J. Super. 514, 520-22, 280 A.2d 241, 245 (L. Div. 1971).

150. *See* Henningsen v. Bloomfield Motors, Inc., 32 N.J. 358, 375, 161 A.2d 69, 78 (1960); Nader & Page, *supra* note 5, at 647-48, 676; Philo, *supra* note 2, at 184. *Cf.* notes 48 and 49 *supra* and accompanying text.

151. *See, e.g.*, Henningsen v. Bloomfield Motors, Inc., 32 N.J. 358, 391, 161 A.2d 69, 87 (1960): "The gross inequality of bargaining position occupied by the consumer in the automobile industry is thus apparent. There is no competition among the car makers in the area of the express warranty." *See also* S. REP. No. 1301, 89th Cong., 2d Sess. 2 (1966).

152. In a fairly high percentage of cases involving products other than heavy industrial machinery, automobiles or lawn mowers, the plaintiffs are nonpurchasers who foreseeably come into contact with defendants' products in public places and are unable, because of their lack of experience or tender years, to appreciate the risks involved or to act so as to avoid serious injury. *See, e.g.*, Garcia v. Halsett, 3 Cal. App. 3d 319, 82 Cal. Rptr. 420 (1970) (young boy caught in automatic washing machine at laundromat); Otis Elevator Co. v. Ward, 436 S.W.2d 324 (Tex. 1968) (plaintiff caught in escalator in department store).

involving harm caused by heavy industrial machinery, for example, courts employ a combination of industry custom and statutory regulation to reduce the open-endedness and polycentricity inherent in passing judgment upon the reasonableness of defendants' designs. Almost always, the issue for the jury in these cases comes down to this: did the defendant manufacturer breach its duty to the plaintiff employee by failing to incorporate a specific, well-known safety device into its design? Where the defendant argues that employers, not manufacturers, customarily attach such devices to the machines,[153] or where statutes make such devices the primary responsibility of the employer,[154] the critical issue is not whether the safety device in question should have been part of the machine when it finally reached and was used by the plaintiff, but whether the manufacturer should be held liable for encouraging the employer to supply the machine to the plaintiff without the device by allowing the employer to purchase the machine in that condition.[155] This substantial transformation of the issue for the jury from *whether* a particular safety device is necessary to *who* (i.e., manufacturer or employer) should be responsible for its omission effectively reduces the polycentricity to levels that render a determination of liability amenable to adjudication.[156] Of course, where neither statutory regulation nor customary conduct of this sort is available, these cases present the more difficult question of whether a particular safety device is necessary. Even focusing upon the inclusion or exclusion of a specific design feature, however, reduces the polycentricity to some extent and correspondingly reduces the difficulties that these cases present. This is especially true where the safety device in question has been included on machines manufactured by others,[157] or where, subsequent to the accident involving plaintiff, the defendant modified its design to include the device.[158] Where these elements are not available to the plaintiff and his arguments are,

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153. *See, e.g.*, Dorsey v. Yoder Co., 331 F. Supp. 753 (E.D. Pa. 1971), *aff'd*, 474 F.2d 1339 (3d Cir. 1973); Bexiga v. Havir Mfg. Co., 60 N.J. 402, 290 A.2d 281 (1972); Brown v. Quick Mix Co., 75 Wash. 2d 833, 454 P.2d 205 (1969).

154. *See, e.g.*, Dorsey v. Yoder Co., 331 F. Supp. 753 (E.D. Pa. 1971), *aff'd*, 474 F.2d 1339 (3d Cir. 1973); Balido v. Improved Mach., Inc., 29 Cal. App. 3d 633, 105 Cal. Rptr. 890 (1973); Bexiga v. Havir Mfg. Co., 60 N.J. 402, 290 A.2d 281 (1972).

155. *See, e.g.*, Bexiga v. Havir Mfg. Co., 60 N.J. 402, 411, 290 A.2d 281, 286 (1972):

> While [defendant manufacturer] may have thought that [plaintiff's employer] would have taken adequate precautions to protect its employees . . . [by installing relevant safety devices], we do not think . . . that [defendant] had a right as a matter of law to assume such devices would be provided.

See also Murphy v. Eaton, Yale & Towne, Inc., 444 F.2d 317 (6th Cir. 1971); Morrow v. Trailmobile, Inc., 12 Ariz. App. 2d 578, 473 P.2d 780 (1970); Willeford v. Mayrath Co., 7 Ill. App. 3d 351, 287 N.E.2d 502 (1972).

156. *Cf.* Calabresi & Hirschoff, *supra* note 3, at 1060-61.

157. *See, e.g.*, Brandon v. Yale & Towne Mfg. Co., 342 F.2d 519 (3d Cir. 1965); Wagner v. Larson, 257 Iowa 1202, 136 N.W.2d 312 (1965); Higgins v. Hardeman, Inc., 457 S.W.2d 943 (Mo. App. 1970); Pizza Inn, Inc. v. Tiffany, 479 P.2d 958 (Tex. App. 1970).

158. *See, e.g.*, Sutkowski v. Universal Marion Corp., 5 Ill. App. 3d 313, 281 N.E.2d 749 (1972); Higgins v. Hardeman, Inc., 457 S.W.2d 943 (Mo. App. 1972); Brown v. Quick Mix Co., 75 Wash. 2d 833, 454 P.2d 205 (1969).

therefore, wholly theoretical, courts generally refuse to allow the issue of the manufacturer's liability to go to the jury.[159] In the rare instances in which plaintiffs have reached juries with such arguments, courts have predictably encountered considerable difficulties with the open-endedness that these cases present.[160]

Perhaps the clearest picture of the difficulties encountered at trial when a court attempts to answer the question of "How much design safety is enough?" is found in *Garst v. General Motors Corp.*,[161] a recent decision by the Kansas Supreme Court. The plaintiffs in *Garst* were three employees of a construction company doing excavation work at a dam site. They were run over and injured (one of them was killed) on the job by an enormous earth-moving machine manufactured by the defendant and operated at the time of the accident by a fellow employee. Their action against General Motors was based upon allegations that both the brakes and the steering system on the machine were negligently designed, rendering the earth-mover insufficiently controllable under the circumstances. The design features and handling characteristics of which the plaintiffs complained were obvious and known by both the operator of the machine and the plaintiffs, and defendant's failure to warn was therefore not an issue. The case was tried before a jury and resulted in a verdict and judgment for plaintiffs. On appeal, the Supreme Court of Kansas, with two justices dissenting, set the verdict aside and entered judgment for defendant on the ground that the evidence was insufficient to support a conclusion of negligent design.

Two aspects of the case are of paramount interest here. First, both the trial court and the supreme court appear to have treated the question of negligent design as open-ended, necessitating consideration of many interrelated factors including safety, functional utility and the feasibility of alternatives. Second, the trial of the case on that basis, in the absence of any pre-existing standards emanating from industry custom or statutory regulation, came very close to being unmanageable. The issue relating to the design of the steering system clearly illustrates the difficulties. Plaintiffs argued that the earth-mover steered too slowly at low engine speeds and that, for this

159. *See, e.g.*, Kaczmarek v. Mesta Mach. Co., 463 F.2d 675 (3d Cir. 1972); Lewis v. Stran-Steel Corp., 6 Ill. App. 3d 142, 285 N.E.2d 631 (1972); Albert v. J. & L. Engineering Co., Inc., 214 So. 2d 212 (La. Ct. App. 1968); Blakenship v. Morrison Mach. Co., 255 Md. 241, 257 A.2d 430 (1969).

160. *See, e.g.*, Parsonson v. Construction Equipment Co., 386 Mich. 61, 65-66, 191 N.W.2d 465, 466-67 (1971):

> [C]ounsel both at trial and on appeal have concentrated too much upon abstractive theories and selected legal writings and too little upon "the facts which generate the law." This has necessitated a doubly cautious transfer of attention from a not too helpful joint appendix to six volumes of transcript consisting of 742 typed sheets, the better to ascertain precisely the legal principle or principles that are applicable to the controlling evidentiary facts.

See also Garst v. General Motors Corp., 207 Kan. 2, 484 P.2d 47 (1971), discussed in text accompanying notes 161-162 *infra*. *Cf.* note 132 *supra* and note 168 *infra*.

161. 207 Kan. 2, 484 P.2d 47 (1971).

reason, the operator had been unable to avoid running over plaintiffs after seeing them in the path of the machine. They relied upon the testimony of an assistant professor of mechanical engineering, who asserted that there were alternative designs available that would have rendered the steering system more responsive. The witness based his opinions on fundamental principles of engineering; none of the suggested alternatives had ever actually been employed on machines of this type.

Plaintiffs' expert began by suggesting that the steering system could have been made more responsive by doubling the size of the hydraulic pump and adding a by-pass valve. Defendants' experts countered that such modifications would not only place a substantial drain upon the available engine horsepower and thereby significantly reduce the overall functional utility of the machine, but would also create a serious problem of excessive heat. Plaintiffs' expert suggested that any heat problem could be solved by increasing the size of the hydraulic reservoir. Defendant's experts rejoined that enlarging the reservoir would create an additional problem of power bleed. Plaintiffs' expert argued that power bleed could be combatted by a two-speed drive system. Defendant's experts insisted that such a two-speed system would create its own safety hazard due to the sudden shift from one gear to the other during the steering cycle. To this plaintiffs' expert responded with yet another alternative—some form of continuous gear ratio between the pump and the engine.

Merely describing this series of arguments should sufficiently demonstrate the difficulties that courts encounter in trying to address themselves conscientiously to the polycentric questions of design these cases present. *Garst* was unmanageable because the central issue was the reasonableness of defendant's conscious design choices. In the absence of any pre-existing standards, the plaintiffs' efforts to demonstrate the unreasonableness of the design were bound to flounder.

On appeal, the Kansas Supreme Court sensibly held the plaintiffs' case to be insufficient as a matter of law. Predictably, the dissenting opinion in favor of sending the case to the jury stresses the qualifications of the plaintiffs' expert and implies that in cases of this sort, assuming that the plaintiff can obtain a qualified expert to describe theoretical alternatives and to give his opinion that the defendant's conscious design choices were unreasonable, the question of liability should almost always be decided by the jury. I submit that given the polycentric nature of the issues presented in this case, the dissenting justices are, in effect, countenancing decision-by-whim on the part of the jury.[162] Linked as the various design alternatives are to the interrelated con-

162. Perhaps the clearest example of an appellate court countenancing decision-by-whim on the part of the jury is found in Moren v. Samuel M. Langston Co., 96 Ill. App. 2d 133, 237 N.E.2d 759 (1968), in which the plaintiff appealed a judgment entered upon a jury verdict for defendant. Plaintiff-appellant argued that the trial court erred in refusing to allow into evidence the testimony of an expert who would have suggested alternative

siderations of safety, functional utility and market price, the case could not have been rationally decided upon negligence principles. In light of the limits of adjudication, the court had little choice but to enter judgment for defendant.[163]

To some extent, industry custom in automobile design cases serves the same function that it serves in cases involving heavy industrial machinery. Courts have employed it to provide a focus and to reduce the open-endedness and polycentricity of the issues presented. In most cases in which plaintiffs have reached juries with arguments of unreasonable automobile design, the design features in question have been isolable components creating greater risks of harm than similar components customarily employed in the automotive industry.[164] Unlike the situation in cases involving heavy industrial machinery, however, the question of whether a particular design component should have been included is never transformed into the much easier question of who should be responsible for its exclusion.[165] Therefore, the courts in automobile design cases utilize a different technique for reducing to more manageable levels the polycentricity of the issues presented. In effect, they hold defendant automobile manufacturers liable only in the most obvious

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designs for defendant's printer-slotter machine, in the rollers of which plaintiff lost both arms. Defendant pointed out that each of the suggestions had been tried and found ineffective, and that no manufacturer had been successful in implementing them. Reversing the judgment and remanding for a new trial on the ground that the opinions of the expert should have been admitted into evidence, the appellate court insisted that industry custom is never conclusive on the issue of liability and that the witness' qualifications entitled his opinions to be given whatever weight the jury might determine to be appropriate. *See also* Rivera v. Rockford Machine & Tool Co., 1 Ill. App. 3d 641, 274 N.E.2d 828 (1971); Jennings v. Tamaker Corp., 42 Mich. App. 319, 201 N.W.2d 654 (1972).

163. For other heavy machinery cases in which courts have found the unsupported conclusions of "experts" inadequate, *see, e.g.*, Maczmarek v. Mesta Mach. Co., 463 F.2d 675 (3d Cir. 1972); Morrow v. Trailmobile, Inc., 12 Ariz. App. 578, 473 P.2d 780 (1970). *See also* Lowe v. Taylor Steel Products Co., 373 F.2d 65 (8th Cir. 1967) (rotary mower); Cosgrove v. Est. of Delves, 35 App. Div. 2d 730, 315 N.Y.S.2d 309 (1970) (plastic champagne cork).

164. *See, e.g.*, Passwater v. General Motors Corp., 454 F.2d 1270 (8th Cir. 1972) (spinning blades on nonfunctional hubcap mutilated motorcyclist's leg); Badorek v. General Motors Corp., 11 Cal. App. 3d 902, 90 Cal. Rptr. 305 (1970) (Corvette Sting Ray gas tank peculiarly located so that relatively minor collision resulted in explosion); DeFelice v. Ford Motor Co., 28 Conn. Supp. 164, 255 A.2d 636 (1969) (fuel lines peculiarly located so that relatively minor collision resulted in explosion); Bolm v. Triumph Corp., 41 App. Div. 54, 341 N.Y.S.2d 846 (1973) (nonessential, decorative luggage rack on motorcycle aggravated injuries on collision). *See also* W. PROSSER, LAW OF TORTS 646 (4th ed. 1971): "It may be significant that the [auto design] cases that have denied recovery have tended to be those in which protection of the plaintiff would have required an extensive, and costly, redesign of the entire automobile, while those allowing it would have tended to call for only minor and inexpensive changes in detail."

165. The middleman between the automobile manufacturer and the purchaser—the dealer—is not ordinarily in a position to exercise the same degree of control as the employer in the machinery cases exercises over the basic safety features of the product design. An analogous situation does arise where the automobile manufacturer delegates to the dealer responsibility for completing basic steps in assembly. Where the dealer assembles the automobile improperly, however, the resulting defect amounts either to a manufacturing flaw or inadvertent design error. Courts hold manufacturers liable for such defects but in doing so they are not required to review the defendant manufacturer's conscious design choices. For a leading case in this area, *see* Vandermark v. Ford Motor Co., 61 Cal. 2d 256, 391 P.2d 168, 37 Cal. Rptr. 896 (1964).

cases of marketplace breakdown producing the clearest examples of unreasonably unsafe design.[166] Whenever plaintiffs ask courts to render judgments concerning the reasonableness of either overall designs or widely accepted, functionally essential components, their claims are rejected as a matter of law,[167] often in opinions reflecting the practical difficulties that a more liberal approach would present.[168]

The rest of the cases in which courts have passed judgment upon the reasonableness of defendants' conscious design choices conform to the patterns already observed. Most often, the plaintiffs who succeed in reaching juries are persons who have not participated in the process of marketplace negotiation by which conscious design choices are determined,[169] and the design features of which they complain tend to be isolable components deviating in some important way from recognized alternatives widely adopted by other manufacturers.[170] The power lawn mower cases reflect these patterns clearly. Typically, the plaintiffs who succeed in reaching juries are neither purchasers nor users of the mowers, but rather are injured third parties who are less likely to have played a role in the marketplace negotiations affecting conscious

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166. *See* Larsen v. General Motors Corp., 391 F.2d 495, 503 (8th Cir. 1968):

> While all risks cannot be eliminated nor can a crash-proof vehicle be designed under the present state of the art, there are many common-sense factors in design, which are or should be well known to the manufacturer that will minimize or lessen the injurious effects of a collision.

See also cases cited in note 164 *supra.*

167. *See, e.g.*, Schneider v. Chrysler Motors Corp., 401 F.2d 549 (8th Cir. 1968); Dean v. General Motors Corp., 301 F. Supp. 187 (E.D. Oa. 1969); Mondshour v. General Motors Corp., 298 F. Supp. 111 (D. Md. 1969); General Motors Corp. v. Howard, 244 So. 2d 726 (Miss. 1971); Gleich v. General Motors Corp., 29 Ohio App. 2d 28, 277 N.E.2d 566, 58 Ohio Op. 2d 18 (1971). *But see* Gray v. General Motors Corp., 434 F.2d 110 (8th Cir. 1970). *See also* PROSSER, *supra* note 164.

168. One of the clearest statements of both the nature and source of these difficulties appears in McClung v. Ford Motor Co., 333 F. Supp. 17, 20, 21 (S.D. W. Va. 1971), *aff'd*, 472 F.2d 240 (4th Cir.)., *cert. denied*, 93 S. Ct. 2779 (1973):

> What standards of duty or reasonableness of design could the courts, in their wisdom, require? Who is to determine the design standards to be imposed? The problems presented by such a proposal certainly would require consideration and evaluation of a number of factors, technical and economic, and is a matter that properly should be resolved by the law making bodies who are directly responsible to the people who make up this Republic. . . .
>
> While safety is of course a vital factor, it is limited by the now present state of technology, by economic considerations and by functional characteristics. At some point the desired social considerations must give way to the expediency of economic and political practicalities . . . . The majority of courts have not seen fit to apply [the concept of absolute liability] to the field of products liability, . . . Irrespective of the equities of a particular case, . . . the law must retain a a quality of uniformity, practicability and concerned reasonableness if stability in our institutions is to survive.

See also Schneider v. Chrysler Motors Corp., 401 F.2d 549 (8th Cir. 1968); Alexander v. Seaboard Air Line R.R. Co., 346 F. Supp. 320 (W.D.N.C. 1971), *aff'd*, Civil No. 71-1915 (4th Cir. Apr. 25, 1972); Gleich v. General Motors Corp., 29 Ohio App. 2d 28, 277 N.E.2d 566 (1971).

169. *See* cases cited in note 152 *supra.*

170. *See* cases cited in note 152 *supra. See also* Schipper v. Levitt & Sons, Inc., 44 N.J. 70, 207 A.2d 314 (1965); Trauring v. Caloric Appliance Corp., CCH PROD. LIAB. REP. ¶ 5672 (N.Y. Sup. Ct. 1966); cases cited in note 139 *supra.*

design choices.[171] And the safety features that these plaintiffs allege should have been included in the designs are features recognized and adopted by other manufacturers for use with similar machines.[172]

In sum, in recent product design cases a few courts in rather special cases have ventured cautiously in the direction of reviewing defendant manufacturers' conscious design choices. By and large, judicial review of product design has occurred only in a few product categories and only in cases conforming remarkably closely to patterns involving marketplace breakdowns and widely recognized design alternatives. In almost all of the cases in which courts have departed from the no duty-failure to warn tradition and have reviewed the reasonableness of defendant manufacturers' conscious design choices, they have employed some techniques for reducing the polycentricity to manageable levels. And in the handful of recent decisions involving conscious design choices in which such techniques were not available, substantial difficulties have been encountered at trial. Legal writers have greatly exaggerated the extent of judicial involvement in establishing design standards and have undoubtedly influenced some courts to exceed the limits of adjudication. Still, most courts have resisted the temptation, and the no duty-failure to warn approach continues to serve as the substantial basis for judicial review in cases involving conscious design choices.

IV. Future Directions of Product Liability Law

The foregoing analysis has demonstrated that, by and large, the courts have refrained from attempting to establish product safety standards; the question is whether they will continue to do so. In cases involving manufacturing flaws and inadvertent design errors, one can safely predict that they will continue to refrain. For some time, social policies favoring the expansion of manfacturers' liability have been mounting to pressure courts in these cases

171. Plaintiffs tend either to be persons struck by projectiles hurled at high speeds by the rotary blades of the mowers, *see, e.g.*, Vroman v. Sears, Roebuck & Co., 387 F.2d 732 (6th Cir. 1967); Blake v. Roy Webster Orchards, 249 Ore. 348, 437 P.2d 757 (1968); or persons (most often children) run over and injured by "ride-em" mowers, *see, e.g.*, Wilson v. American Chain & Cable Co., Inc., 364 F.2d 558 (3d Cir. 1966); Sanders v. Western Auto Supply Co., 256 S.C. 490, 183 S.E.2d 321 (1971); Howes v. Hansen, 56 Wis. 247, 201 N.W.2d 825 (1972).

172. *See, e.g.*, Vroman v. Sears, Roebuck & Co., 387 F.2d 732 (6th Cir. 1967); Sanders v. Western Auto Supply Co., 256 S.C. 490, 183 S.E.2d 321 (1971); South Austin Drive-In Theatre v. Thomison, 421 S.W.2d 933 (Tex. App. 1967). In some of the other lawn mower design cases that have gone to juries, it is difficult to determine from the opinions whether the design features were recognized or adopted by other manufacturers. *See, e.g.*, Wilson v. American Chain & Cable Co., Inc., 364 F.2d 558 (3d Cir. 1966); Blake v. Roy Webster Orchards, Inc., 249 Ore. 348, 437 P.2d 757 (1968). The two cases in which the plaintiffs' arguments were wholly theoretical resulted in jury verdicts for defendants, affirmed on appeal, and clearly reflect the difficulties encountered in considering the open-ended question of the reasonableness of defendants' conscious design choices. *See* Wilson v. Savage Arms Corp., 305 F. Supp. 1163 (E.D. Pa. 1969); Clark v. Sears, Roebuck & Co., 254 So. 2d 62 (La. App. 1971).

to adopt strict liability responses that avoid the necessity of establishing independent product safety standards. Because the solutions adopted by a growing majority of courts in cases involving manufacturing flaws and inadvertent design errors represent a happy coincidence of what is demanded by social policy and what is feasible in light of institutional limitations, there is no reason whatsoever to expect that courts will deviate substantially from their present course of development.

Cases involving manufacturers' conscious design choices, however, present a more difficult problem. Here, pressures favoring governmental intervention in the form of an expansion of manufacturers' liability are pushing the courts toward, rather than away from, the necessity of establishing independent standards.[173] Up until now, the courts for the most part have reacted with the proper degree of restraint. While they have occasionally intervened in unusual cases, they have not yielded to the pressures so frequently as to threaten the integrity of the adjudicative process. But what of the future? Even if the courts are inherently unsuited to perform the standard-setting function, will not the pressures favoring expansion of manufacturers' liability be too strong to resist in the years ahead? Are not the recent examples of judicial standard-setting to be viewed, after all, as the first indications of what will soon develop into a sweeping wave of reform?

I think not. Several factors combine to assure that the pressures favoring independent judicial review of manufacturers' conscious design choices will never become too strong for courts generally to resist. Perhaps the most significant factor is the likelihood, approaching certainty, that legislative action will operate to reduce these pressures, for the legislature is, even more than the courts, also subjected to the demands for adequate product safety levels. To be sure, as law reform advocates have long been aware, the legislative process tends to respond slowly to pressures for change, but the adjudicative process tends no less stubbornly to resist efforts to force it to exceed its proper limits. Therefore, one may reasonably expect that when the pressures favoring independent judicial review of manufacturers' conscious design choices in a given product area build to the point that courts can no longer resist them, these same pressures will move legislatures to devise more appropriate solutions to the difficulties.

This expectation of legislative action is based upon more than mere speculation. In the two product categories most frequently encountered in recent manufacturers' design choice cases, automobiles and heavy industrial machinery, Congress has already responded, establishing specialized administrative agencies and procedures for handling problems, including the estab-

173. This view assumes that the courts will not, and probably could not, move to a judicially imposed system of absolute manufacturers' liability for harm attributable to conscious design choices. *See* notes 95-100 and accompanying text *supra*.

lishment and enforcement of standards relating to product design.[174] As these programs become increasingly active, and the administrative agencies begin vigorously to address the broad spectrum of issues involved in the design of automobiles and heavy industrial machinery, pressures upon the courts to engage in standard-setting should correspondingly diminish.[175]

Moreover, recent enactment of the Federal Consumer Product Safety Act,[176] creating a new administrative agency empowered to establish safety standards for a wide range of consumer products,[177] strongly suggests that the trend toward legislative and administrative standard-setting will continue. The report of the National Commission on Product Safety,[178] upon whose recommendations the Product Safety Act is largely based,[179] clearly indicates that the priorities of the new agency will correspond almost exactly to those product areas exerting the greatest pressures upon the courts.[180] Included in

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174. *See* National Traffic and Motor Vehicle Safety Act, 15 U.S.C. § 1381 (1966); Occupational Health and Safety Act, 29 U.S.C. § 651 (1970).

175. In light of the limits of adjudication, the inclusion in the federal highway safety statute of a provision purporting to leave courts free to establish more stringent automobile design standards will for the most part prove to be a futile gesture. *See*, 15 U.S.C. § 1397(c). Moreover, the fact that the federal occupational safety statute does not directly concern itself with machinery manufacturers' responsibilities will be irrelevant. Although the Act states that the congressional purpose is to set standards for employers and employees, 29 U.S.C. § 651 (1970), manufacturers will naturally have to alter their designs to comply with the safety standards established by the agency. Furthermore, because of their limitations, courts are very likely to look to the safety standards promulgated under the Act when adjudicating claims against machinery manufacturers.

I am not arguing here that these special agencies will necessarily solve all of the problems involving product safety in our society. Situations will continue to arise in which even an inadequate judicial response is arguably preferable to no governmental response at all. I am simply asserting that they will relieve pressures upon the courts sufficiently to allow the judiciary to continue to resist the temptation to engage wholesale in the establishment of independent product safety standards.

176. *See* 86 Stat. 1207, P.L. 92-573 (Oct. 27, 1972).

177. The new Consumer Product Safety Commission is empowered to promulgate standards

> for any article or component part thereof, produced or distributed (i) for sale to a consumer for use in or around a permanent or temporary household or residence, a school, in recreation, or otherwise, or (ii) for the personal use, consumption or enjoyment of a consumer in or around a permanent or temporary household or residence, a school, in recreation or otherwise.

86 Stat. 1210, P.L. 92-573 § 4(a). The act specifically excludes certain articles regulated by other federal statutes: motor vehicles, boats, drugs, cosmetics, airplanes, tobacco, economic poisons and certain food products. 86 Stat. 1208, 1209, P.L. 92-573 § 3(a)(1). In addition, the Consumer Product Safety Commission may promulgate standards relating to (1) the performance, composition, contents, design, construction, finish, or packaging of a consumer product, and (2) of supplying of warnings and instructions for use. 86 Stat. 1213, P.L. 92-573 § 7(a)(1) and (2).

178. NATIONAL COMMISSION OF PRODUCT SAFETY, FINAL REPORT (1970) [hereinafter FINAL REPORT].

179. The most significant difference between the Product Safety Act and the Act proposed by the National Commission on Product Safety is the omission in the former of the Independent Consumer Safety Advocate suggested by the Commission.

180. The FINAL REPORT includes a list of products which should be regulated. The list includes architectural glass, television sets, fireworks, floor furnaces, glass bottles, bicycles, hot water vaporizers, household chemicals, infant furniture, ladders, power tools, protective headgear, rotary mowers, toys, gas heaters, washing machines, electric blankets, dryers, hot plates, bathtubs, extension cords, igniters, space heaters, lead paint, propane gas, footwear, welders, eyeglasses, swimming pools, recreational equipment and aerosol containers. *See* FINAL REPORT xii.

the Act is a provision authorizing suits for damages to be brought in the federal courts by persons injured by reason of knowing violations of any consumer product safety rule.[181] Since the role of applying administratively established standards is one for which the courts are very well suited, this provision will surely be given full effect in actions against manufacturers by injured plaintiffs. While the Act also provides that compliance with such product safety rules shall not relieve any person of liability at common law,[182] the inherent limits of adjudication should prevent courts from making extensive use of this latter provision to establish independent design standards.

In addition to the administrative establishment of specific product design standards, there is an even more basic way in which legislative action may reduce the pressures upon the courts to exceed the limits of adjudication. As now set up, the administrative agencies—whenever the functioning of the marketplace appears to have broken down—will impose their own standards, thereby replacing the marketplace with some form of governmentally supervised decision-making. In the long run, however, it may prove more fruitful and desirable for the government to repair rather than replace the marketplace whenever it appears to have broken down. Clearly, the legislative and administrative processes are institutionally suited to effecting such repairs and have traditionally been employed for that end. At the federal level, for example, a number of administrative agencies have been created over the years expressly for the purpose of attempting to correct marketplace imbalances between manufacturers and consumers caused by the latter's inability to assess the nature and extent of the risks associated with the former's conscious design choices.[183] And there are federal antitrust laws aimed at preserving competition among manufacturers in the marketplace.[184] Similarly, the recently proposed and narrowly defeated Federal Consumer Protection Act of 1971,[185] which would have created a Consumer Protection Agency empowered to intervene on behalf of consumers in a wide range of governmental proceedings, reflects a growing concern over correcting imbalances in political and economic power between manufacturers and consumers. With successful legislative efforts directed toward the repair, rather than the replacement, of the marketplace, will come a corresponding strengthening of the courts' confidence in marketplace negotiation as a decision-making process to which responsibility for conscious design choices may be delegated.

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181. 86 Stat. 1226, P.L. 92-573 § 24.

182. 86 Stat. 1227, P.L. 92-573 § 25(a).

183. *E.g.*, the Food and Drug Administration, the Federal Trade Commission and the Federal Aviation Administration.

184. The most important of these are sections 1 and 2 of the Sherman Act (15 U.S.C. §§ 1 & 2 (1970)) and sections 3 and 7 of the Clayton Act (15 U.S.C. §§ 14 & 18 (1970)).

185. The bill (S. 3970) died in the Senate because its proponents failed to obtain the votes required for a cloture. In each of three attempts they failed by three votes to obtain the necessary two-thirds majority. See CONG. Q. WEEKLY RPT. Oct. 14, 1972, 2635, 2700.

Legislative action aimed at either repairing or replacing the marketplace in areas of significant breakdown is not the only factor that will relieve pressures upon the courts to engage in the establishment of design standards. for the courts themselves may be expected to respond in ways designed to accomplish the same objective. The most likely judicial response will be the expansion and development of manufacturers' duties regarding the marketing of their products. Expanded duties will help assure the viability of the marketplace and the continued delegation thereto of a major portion of the responsibility for making conscious design choices. There are indications in recent decisions involving conscious design choices that this expansion and development is already under way,[186] and I predict that it will increasingly occupy the courts' attention in the years ahead. The future of common law products liability in cases involving conscious design choices lies not with the manner in which products are designed, but with the manner in which they are marketed. Courts should resist the pressures to adjudicate the reasonableness of conscious design choices, and give in only in those few cases where the polycentricity of the question can be narrowed and a judicial resolution appears preferable to no solution at all.

CONCLUSION

To those consumer advocates who look upon their efforts to achieve greater product safety as a struggle approximating all-out war, the preceding analysis is apt to ring of treason. Having argued that courts are not suited to participate directly in the establishment of product safety standards, I may appear to be calling for the removal from the battlefield of an effective weapon in the consumer protection arsenal. But I have called for no such thing. Assuming the battlefield of particular interest here is the one upon which product safety standards are established, I am calling not for the removal of the courts from that field but for a recognition that the courts have never really occupied it in the first place. Moreover, to attempt to assign them now to the task of reviewing manufacturers' conscious design

186. Perhaps the clearest evidence of such an expansion is in the field of prescription drugs. The recent case of Incollingo v. Ewing, 444 Pa. 263, 282 A.2d 206 (1971), in which the defendant drug manufacturer was held liable for having failed with sufficient vigor to alert doctors concerning possible side effects, is merely the latest in a series of decisions imposing strict duties upon defendants regarding the marketing of their products. *See* also Sterling Drug Co. v. Basko, 416 F.2d 417 (2d Cir. 1969); Sterling Drug Co. v. Yarrow, 408 F.2d 978 (8th Cir. 1969).

In the area of household products, the recent decision of the Supreme Court of Minnesota in McCormack v. Hankscraft Co., 278 Minn. 322, 154 N.W.2d 488 (1967), suggests that defendant may be liable for advertising found to have lulled the purchaser's otherwise normal sense of vigilance regarding obvious dangers associated with product design. And the dissent in Schemel v. General Motors Corp., 384 F.2d 802 (7th Cir. 1967) suggests that some judges, at least, are ready to listen favorably to allegations of "negligent advertising." *See also* Jamieson v. Woodward & Lothrop, 247 F.2d 23 (D.C. Cir. 1957) (dissenting opinion), *cert. denied*, 355 U.S. 855 (1957); Heaton v. Ford Motor Co., 248 Ore. 467, 435 P.2d 806 (1967) (dissenting opinion).

choices would, in effect, be to send them on a suicide mission. The superficial attractiveness of courts attempting such an effort detracts not at all from the realities of the limits of adjudication as I have described them.

If I should be wrong in my prediction that legislative responses in the area of product design and judicial attention on marketing will reduce pressures sufficiently to allow courts generally to resist independent attempts to adjudicate the reasonableness of defendant manufacturers' conscious design choices and if, instead, the coming years should find most courts making such attempts, then we will have entered a regrettable phase in the development of products liability. The courts will have been badgered into trying to deliver more than the process of adjudication is capable of delivering, and the end result will be the subversion of that process and its displacement by a thinly disguised lottery.[187] If this occurs, it will be incumbent upon the legislature to replace the common law system of manufacturers' liability for conscious design choices with some more orderly, fair and rational system for compensating the victims of product-related injuries.

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187. To some extent, this is what has happened in cases of railroad employer liability under the Federal Employers' Liability Act, 45 U.S.C. § 51 et seq. (1970). The requirement of evidence of negligence has been gradually reduced to the "vanishing point," *see* Atlantic Coast Line R. Co. v. Barrett, 101 So. 2d 37 (Fla. 1958), and plaintiffs reach juries whenever "the proofs justify with reason the conclusion that employer negligence played any part, even the slightest, in producing the injury or death for which damages are sought." Rogers v. Missouri Pac. R. Co., 352 U.S. 500 (1957), *reh. denied*, 353 U.S. 943 (1957). This liberality on behalf of plaintiffs has been described as strict employers' liability. *See, e.g.*, Corso, *How FELA Became Liability Without Fault*, 15 CLEVE. MARSH. L. REV. 344 (1966). As I have attempted to demonstrate in this article, a rule of strict liability would not threaten the integrity of the judicial process. *See* text accompanying notes 95-96 *supra*. However, in theory at least, the FELA is *not* a system of strict liability, since the jury may choose to deny recovery. In keeping with the preceding analysis in this article, I would describe it as a system of "jury's whim" liability, and condemn it in principle for that reason. This very same "jury's whim" aspect of FELA cases has disturbed members of the United States Supreme Court in cases brought to them for review. Justice Frankfurter was a most outspoken critic whose choice of words echoes points made earlier in this article:

> The easy but timid way out for a trial judge is to leave all cases tried to a jury for jury determination, but in so doing he fails in his duty. . . . A timid judge, like a biased judge, is intrinsically a lawless judge.

Wilkerson v. McCarthy, 336 U.S. 53, 65 (1948) (concurring opinion). This arguably lawless system appears to have survived due to opposition to change by railway workers' unions. *See, e.g.*, Richter & Forer, *Federal Employers' Liability Act—A Real Compensatory Law for Railroad Workers*, 36 CORNELL L.Q. 203 (1951). Thus, although my analysis suggests that the FELA cases are not defensible in principle, one might conceivably accept them as practical accommodations where the parties affected thereby (corporate railroad employers and their employees) are engaged in a formal, continuous process of contract negotiation in which the impact of the employers' liability system is consciously taken into account. However, such a scheme would be neither theoretically defensible nor practically acceptable were it to be exported to the products liability field (where defendants' verdicts are common) and imposed upon parties who are not thus engaged in continuous, formal negotiations and who therefore have not mutually agreed to the substitution of a lottery in place of the judicial process.