THE EVOLUTION
OF USEFUL
THINGS

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When Good Is Better Than Best

Just as investors speculate on the future price of oil and other commodities, so do entrepreneurs, venture capitalists, and corporations speculate on the future of new designs. And just as oil prices can depend upon a host of cultural and political factors well beyond the seemingly simple rules of supply and demand, so can the acceptance or rejection of a new or even a modified artifact depend upon much more than how well or poorly its form suits, let alone follows, its function. Indeed, the investor in design is ill served by an adviser who looks too narrowly at technical indicators to prognosticate performance in the marketplace. Case study after case study warns us that no design is sacred and that form follows where the future leads.

As examples like the aluminum can and plastic bottle make so clear, it is not only consumer products proper but also the design of their packaging that can be subject to the times. In the early 1970s, the McDonald’s Corporation was encircling its Big Mac in a paper collar, wrapping it in paper and foil, and then inserting all of this in a red box. Such an elaborate package, though hardly an organic form following from any single function, was developed to meet the several functions of getting an elaborate hamburger from behind the counter to the customer’s mouth without its looking or feeling like a cold, soggy mess, at least before the first bite. The paper collar kept the double-decker Big Mac from being skewed or squashed in all the wrapping and handling, the paper absorbed excess grease and thus prevented unsightly drips, the foil not only kept the hamburger from becoming cold and dried out but also covered any grease spots on the paper and thus prevented any unsightly appearance from
causing Big Mac purchasers to lose their appetites. Finally, the box kept the wrapping from coming undone and gave the Big Mac a special gloss to accompany its special sauce. Even if it was effective, the elaborate packaging took considerable time to assemble and a not inconsiderable amount of time to open. In short, the medium failed to convey the proper message for a fast-food restaurant.

In 1975 McDonald’s introduced a new packaging design that seemed to remove all the failings of the old. Each Big Mac was to be packed in a polystyrene “clamshell,” an ingenious device made from foamed petroleum products that enabled the hamburger to be packaged in a single motion in a single container that could be opened just as quickly and easily by the consumer. As a bonus feature, customers found that the opened lid of the clamshell provided a convenient bowl for French fries. Moreover, the box evoked the faux-mansard roofs of the McDonald’s restaurants and seemed to be the perfect metaphor for the fast-food chain.

The new hamburger packaging was not wholly a new idea, for the same material had been used in the familiar foam egg cartons that were then becoming ubiquitous in supermarkets, but the fast-food application seemed brilliant. The rigid plastic-foam container kept the temperature and moisture in, absorbed grease without becoming unsightly or soggy itself, and provided a neat, colorful, and distinctive one-piece package for the Big Mac. Furthermore, by the mid-1970s there was a growing concern over the profligate use of paper as packaging, and the clamshell thus seemed to constitute an environmentally innovative approach.

The Big Mac clamshell was hailed by designers as a model achievement, and eventually other McDonald’s products were being sold in similar packaging, with the clamshell appropriately colored and printed to distinguish, say, a Quarter Pounder from a Quarter Pounder with Cheese. In time, the basic design evolved into a related product that looked somewhat like one flat-opened clamshell covered by another. This provided a divided package that was integral to the marketing of a new sandwich, the McDLT. One compartment of the double polystyrene shell kept a hamburger warm, and the other kept the lettuce and tomato cool, until the customer was ready to combine the ingredients.

When a still newer sandwich, the McChicken, was introduced, it was packaged in a modified clamshell that emphasized one disadvantage of the original design, which seems to have been over-
When first introduced, the McDonald's clamshell appeared to be the ideal packaging for a fast-food hamburger. The polystyrene-foam box not only kept the heat and moisture in but also absorbed neatly any errant grease. Furthermore, the hamburger could be boxed in one quick flip of the lid and opened just as easily. Unfortunately, what was once heralded as a brilliant piece of packaging became such an environmental nightmare for the restaurant chain that it reverted to paper packaging.

looked amid all the hoopla accompanying the introduction and acceptance of the plastic box—namely, that it was not very easy to get the Big Mac or Quarter Pounder out of the deep half-shell in which it sat. To make the clamshell much bigger than the hamburger would have made the food look skimpy, yet the fit was so tight it was hard for diners to get their fingers beneath the sandwich, and it was necessary to tip the package over for access to its contents. The new McChicken was packaged in a modified clamshell whose bottom was tapered down from the hinge to the latch so that, when the box was opened, one side of the sandwich was exposed to the fingers for easy removal. This clear improvement in the basic design eliminated the
little annoyance of its predecessors but was not adopted for other McDonald’s sandwiches, presumably because there was a reluctance to tamper with the “classic” designs that had become so familiar. But, however familiar, these same designs that once seemed so successful from certain functional perspectives, soon came to be seen as failures from other ones.

Within a decade of its introduction, the clamshell began to be attacked as a symbol of wasteful packaging and a threat to the environment. Paper was still a problem, of course, but plastics were perceived to be a worse one. The chlorofluorocarbons (CFCs) that were used in forming the plastic-foam container were implicated in the depletion of the earth’s protective ozone layer. McDonald’s showed itself to be responsive to environmental concerns by switching to plastic packaging made without CFCs, and the phase-out was completed in 1988. In 1990 the restaurant chain was highlighting the decision in corporate promotional material, stating that the move had been supported by environmental organizations and the Environmental Protection Agency. But even if environmental groups did concur with McDonald’s efforts in behalf of the ozone layer, other differences were not necessarily resolved.

The polystyrene clamshell had a useful life of only the short time it held a sandwich from the counter to the table, and the seemingly eternal afterlife of the package made it a very visible contributor to growing litter and pollution problems. The clamshell failed to satisfy environmentalists because it was not biodegradable and it bulked out the contents of landfills. By the late 1980s, the continued criticism of its packaging by environmental activists led McDonald’s to explore the possibility of recycling its plastic food containers, but there was skepticism as to whether such an effort was economically feasible. The polystyrene clamshells were often held up as the most visible symbol of profligate disregard for the environment, the commuting of differently processed polystyrene salad bowls and lids, polyethylene-coated paper cups, polypropylene straws, and other fast-food packaging and accessories made it difficult to separate them all for recycling. Furthermore, cleaning up the waste was problematic, compacting it was messy, and storing it unwashed and in bulk was malodorous and space-consuming. Finally, in 1990, the corporation declared that by the end of the year it would begin to phase out the plastic packaging in favor of paper.

The McDonald’s plastic clamshells had accounted for about 10
percent of the sales of Amoco Foam Products Company, a division of the oil corporation, and for about 7 or 8 percent of the one billion pounds of foam packaging manufactured in the United States each year. McDonald's was able to make what seemed to be an overnight change in policy because, as it came under increasing attack by environmental groups, the corporation had for some time been weighing the pros and cons of paper versus plastic packaging. In announcing the change, the company's president posed with the director of the Environmental Defense Fund, behind a table crowded with tall piles of foam boxes and the much more modest pile of paper that would replace them. But environmentalists were by no means unanimous in hailing McDonald's decision. Although the Environmental Action Foundation noted that the "polystyrene production process is polluting and the styrene monomer is a suspected human carcinogen," a scientist from the National Audubon Society received the food chain's announcement with less enthusiasm, pointing out that paper was also a pollutant.

Others used the occasion of the packaging-design change to make a further point. In the wake of McDonald's announcement, one of its arch-competitors took out full-page newspaper ads declaring "Burger King applauds McDonald's for its new environmental consciousness." But, the ad continued, "Welcome to the club. We wonder what the planet would be like if you had joined us in 1955?" Nineteen fifty-five was the year since which the then newly created Burger King had used mainly paper packaging. Polystyrene coffee cups were an exception, and in late 1990 they were in the process of being replaced by thick-paper cups.

All of these decisions were clearly more politically than technologically driven, pointing up the complex dynamics behind the evolution of artifacts. The conventional wisdom is that technology affects society in irreversible ways and that, as Ralph Waldo Emerson wrote in a poem, "Things are in the saddle, / and ride mankind." However, we might also extend the metaphor by recognizing that we are capable of rearing up and bucking off things that we find too burdensome or that we feel are taking us in the wrong direction. But, in spite of the spectrum of forces at work in pushing and pulling the form of everything from plastic packaging to the hamburger it contains, there remains a unifying principle behind all influences on form. That principle is embodied in the concept of failure, whether in regard to the technological function of keeping the hamburger
fresh and warm or the social function of achieving a healthy and clean environment. The failure of a particular package to perform either of these functions can introduce forces toward change or redesign. But, as the example of hamburger packaging so neatly compresses into the span of a decade and a half, what connotes failure one year may not do so fifteen years hence.

Our collective political memory may understandably seem not to be so long as even four years; for all its supposed objectivity, our technological memory can seem just as short and as subject to slogans over substance, to promises over proof. It was, after all, a rather objective judgment that the foam clamshell did for the Big Mac and McDLT what paper packaging could not. In announcing McDonald's environmentally responsible decision, the company president had to admit that the new containers would not retain heat as well as foam. According to one report, he said that “improvements in cooking methods since the company last used paper-based packaging in the early 1970s would compensate.” He also said that “the technology of the cooking process has caught up to the defects of paper,” but certainly the truth of that assertion is going to boil down to a question of taste. As for the McDLT, whose very concept relied on the dual-chambered foam package, that was admitted to be “a very difficult problem” indeed. In fact, the McDLT was unavailable while new packaging was being developed.

There are a lot of difficult problems in design, and their solution necessarily depends not only upon where designers understand the problems with the past to be but also upon how clearly designers see the road to the future. The operators of wheeled vehicles, by their very nature, are forward-looking; the earliest carts were pulled rather than pushed by people who could see the path unobstructed before them, perhaps in imitation of the way they pulled plows, and the advantage of this arrangement is clear to anyone who has tried to put a cart before a horse or backed up a car with a trailer attached. In time, people were replaced by draft animals, of course, and the only kind of wagonlike vehicles that seem to have evolved with their prime mover following rather than leading has been human-powered.

For a long time in China, where there was such an effective network of waterways, roads and wheeled vehicles did not evolve into so sophisticated a technology as they did in the West. However, one means of land transportation, the Chinese wheelbarrow, which
The Chinese wheelbarrow is so constructed that a massive and bulky load may be lashed to the frame in such a way as to achieve almost perfect balance about the large enclosed wheel. Thus loaded and balanced, the wheelbarrow presents little burden to the handles, and the person pushing it can concentrate on maneuvering the vehicle.

is believed to have appeared about eighteen hundred years ago, did develop into a rather ingenious configuration. The Chinese wheelbarrow has a very large wheel, of three-to-four-foot diameter, which is set close to the center of the vehicle. The wheel's upper part is enclosed in a wooden framework onto which an enormous burden can be piled and lashed in a careful arrangement that balances itself both side to side and front to back, so that the pusher is little borne
upon by the burden and can concentrate on guiding the barrow.

This vehicle is said to have evolved from two-wheeled carts that were ineffective in rice paddies, whose dry boundaries, on which the wheels worked best, were often little more than narrow-topped embankments. A single-wheeled vehicle could be negotiated along the flattened tops of embankments on which a double-wheeled one could not, but even the single wheel of a pulled wagon could easily slip off the narrow divide unless the puller was exceedingly careful and constantly looked back over his shoulder. Keeping the path in view before the wheel was thus the way to proceed.

Beyond also having a single wheel, the Western wheelbarrow bears little resemblance to its Chinese counterpart, and appears to have developed entirely independently, from a wheelless hod carried stretcherlike by two men. Used in mining and construction work, where narrow passageways and temporary bridges were the rule, the two-man hod was essentially a box with handles extending front and rear. Though this hod was perfectly effective for moving its burden relatively short distances, its great disadvantage was that it could not be operated by a single man. But adding a wheel between one set of handles removed this fault, for now a single man could move the load, bearing no more of the burden than before. The two-man hod was no doubt guided by the leading man, and so the earliest Western wheelbarrows might have been pulled rather than pushed. But the disadvantages of doing this along a narrow plank would have been as evident as those of doing it on the ridge between rice paddies, and so the manner of pushing the wheelbarrow, albeit in an awkwardly stooping fashion, to give the pilot-navigator maximum visibility of the path his wheel was taking, would naturally have evolved.

Looking forward is indeed the essence of design, but artifacts take on their form over the course of long, rough, and frequently precarious roads. When the first horseless carriages were developed, the choices were at least as numerous as those associated with laying out the parts of a motorcycle on a bicycle frame. The designers of the first autos naturally focused on the most innovative aspect of motive power, and did not overwhelm themselves with choices of how to steer the vehicle, whose chassis was still basically a wagon. The role of reins, for example, was played by a lever that extended into the driver’s hand.
The Western wheelbarrow appears to have developed from a wheelless hodlike device that was carried by two workers. This illustration from Diderot’s *L'Encyclopédie* shows such a hod in use. The singular disadvantage of this kind of hod, that it required two workers simultaneously, was clearly overcome by adding a single wheel between one pair of handles.

With a successor to the horseless carriage firmly established in the automobile—and when roads had been adapted to it rather than it to they—the attention of designers could focus on the details of how it was made and functioned. The American system of manufacture, whereby everything from pins to pistols was either mass-produced by machine or assembled in machinelike fashion, naturally led a Henry Ford to see automobiles manufactured that way. The design of cars was a question of seeing clearly ahead on the road along which cars and the country were heading. All innovators believe they see the road ahead clearly, of course, but on the journey of design all roads fork and fork again into the undergrowth. Which will become the roads more traveled by will depend on style and conformity that designers, no less than poets—if only in retrospect—may lament. And if the choice of which road to take is not obvious, then the shape of the vehicle to travel upon it may be even less so.

The streamlining of airplanes followed naturally from their failure.
These two wheelbarrows, illustrated in Agricola’s sixteenth-century treatise on mining, clearly have a strong resemblance to the two-man hod depicted two centuries later in *L’Encyclopédie*. While the wheelbarrow clearly had an advantage over the hod in requiring only one person to transport it, the hod retained an advantage over the wheelbarrow when it came to being emptied onto an elevated work space. Such relative advantages and disadvantages among artifacts lead to diversity rather than extinction.

to move efficiently through the air, but the design of the first Wright aeroplanes concentrated rightly not on style but on the principal design problem of the day—that of controlling the craft. With increasing mastery of that came increasing speed, which in turn raised the drag on the boxy shapes whose aesthetics were of little concern in the rush to human flight (a phenomenon to be repeated seventy years hence in the Gossamer Condor). By the 1930s, the teardrop shape, known since the turn of the century to be the form of least resistance, was incorporated into Boeing and Douglas aircraft, and, being the contemporary artifact that best symbolized the future, the
airplane set the style for things generally. The most static of mundane objects were streamlined for no functional purpose, and chromed and rounded staplers, pencil sharpeners, and toasters were hailed as the epitome of design.

Streamlining American automobiles began with some subtle changes introduced in the 1920s, but the solidly established squarish Fords set the aesthetic standard. Radical streamlining, such as introduced by Buckminster Fuller in his Dymaxion car exhibited in 1935 at the Chicago World’s Fair, was clearly “futuristic,” and hence not taken as seriously as cars of the present. The sensibly streamlined 1934 Chrysler Airflow rounded and tapered the boxy profile, fenders, and windows of contemporary designs, but it was not a commercial success. The immediate postwar period, which the atomic bomb, if nothing else, defined as the future realized, saw the arrival of truly streamlined cars in the 1947 Studebaker. Though the design owed its aesthetic appearance to Raymond Loewy, he clearly acknowledged the indispensable entrepreneurial role of Studebaker’s president in turning sketches to reality. With the arrival of the future, as embodied in the jet-and-atomic age, automobile styling no longer had to hark back to its roots, and the fins of rockets began to ornament the tails of Cadillacs in 1948. Throughout the 1950s, fins grew to amazing proportions, each year’s models outdoing the last for no functional purpose other than that the new style sold cars.

With the orbiting of the artificial satellite Sputnik in 1957, the space race had begun, and a new design aesthetic was in place. Fins were necessary on the rockets that launched satellites, but the artificial moons themselves needed no streamlining or stabilizers to orbit in the virtually frictionless void above the earth’s atmosphere. Sputnik was a surprise, of course, and so automobile designers could not use it to define their immediately upcoming models; with time, however, the look of the future was toward the moon and outer space. The lunar excursion module was a contraption worthy of the Wright Brothers, and streamlining was a distinct disadvantage to a space capsule returning through earth’s atmosphere. Designs for interplanetary probes re-emphasized the curiously boxy beauty of the future, and the space shuttle became the vehicle of design as well as of transportation choice. The silhouette of terrestrial vans introduced in the 1980s bears a distinct resemblance to the nose of the shuttle, and names like Ford’s Aerostar leave little to the imagination as to what images they wish to evoke. Automobiles are mar-
keted like hamburgers, and how well the future dreams and detestations of the customer are read, whether in the product per se or in its packaging, can make the difference between commercial success and failure when design must satisfy so many functions that a single form could hardly be expected to follow from them.

Though all design is necessarily forward-looking, all design or design changes are not necessarily motivated by fickle style trends, whether they be in the environmental politics of plastic packaging or in the patriotic images of advanced technology. The best in design always prefers substance over style, and the lasting concept over the ephemeral gimmick. Design problems arise out of the failure of some existing thing, system, or process to function as well as might be hoped, and they arise also out of anticipated situations wherein failure is envisioned.

Ralph Caplan's book *By Design* is distinguished by the intriguing situation described in its subtitle: *Why There Are No Locks on the Bathroom Doors in the Hotel Louis XIV*. Caplan writes of the bathroom-door object lesson as "an ingenious example of the product-situation cycle" and as "the perfect fusion of product and circumstance, and a demonstration of the design process at its best." His language is more that of the industrial designer than of the engineer, but the hotel problem that Caplan highlights is indeed a wonderful model for how designers must always look ahead, to the future situations and circumstances in which their product will be employed—and to how it might fail.

Before it was destroyed by fire, L'Hôtel Louis XIV, which was located on the waterfront in Quebec, advertised private baths. However, their privacy was of a limited and precarious kind, for each bath was located between a pair of guest rooms, both of which opened into it. This arrangement is not uncommon in private homes, where bedrooms share a bathroom or where a bathroom opening into a bedroom also opens into a hallway. In all such situations, the basic design objective is to provide privacy for whoever might be using the bathroom. This can be achieved in many ways, of course, and the most obvious and common way is to have locks on each of the doors, so that the bathroom user may bar others from entering. The failure of this solution is frequent and frustrating: the person who has finished with the bathroom forgets to unlock the second door, causing at least a little inconvenience for the next user who tries to enter it. In bathrooms shared by siblings, screaming
through the locked door may or may not get results, but generally there is little more than the temporary inconvenience of having to go around to the other door or to another bathroom in the house. Families that find bathroom doors too frequently locked can remove all locks from the doors and trust everyone to knock before entering.

In the case of bathrooms shared by unrelated guests, the problem is less easily solved. I once stayed in a wonderful old home across the street from Washington University in St. Louis in which two guest rooms shared the same bathroom. Individual guests were expected to come and go at odd hours, and they often wished to leave irresponsible things like slides and manuscripts in their rooms. Hence, it was desirable that the rooms could be locked against entry from both the hall and the bathroom and, at the same time, that both bathroom doors could be locked from the inside so that privacy could be assured. The arrangement no doubt resulted in many frustrated guests finding themselves locked out of the bathroom, the other guest not in, and the housekeeper nowhere to be found. The measures taken to avoid this situation consisted of a nicely printed sign placed prominently on the dresser beside the bathroom door, reminding each guest to unlock the other guest’s door before leaving the bathroom. I am sure I was not the only guest who suffered from the inadequacy of that solution.

Whether it was the repeated failure of guests to remember to unlock their neighbors’ doors or some uncommon foresight on the part of the Louis XIV to anticipate the failure of locks to provide fail-safe access to an empty private bathroom, the hotel solved the problem in an ingenious way. Each bathroom door did have a lock on the guest-room side, of course, for otherwise a stranger could come in through the common bathroom, but there were no locks at all on the insides of the bathroom doors. To gain privacy, a guest hooked together in the middle of the room the ends of the three- and-a-half-foot lengths of leather thong attached to each doorknob. Even if the leathers stretched tautly across the bathroom interfered a bit with movement inside, they effectively prevented either door from being pulled open while the bathroom was occupied. However, to open either one of the doors to leave the bathroom, the thongs had to be unhooked, thus unlocking both doors simultaneously.

Focusing too closely on the immediate design problem, whether it be locking bathroom doors for privacy or canning food for preser-
This sketch of one of the bathrooms in L’Hôtel Louis XIV shows leather thongs attached to the doorknobs and fastened together by the occupant (not shown) to ensure privacy. The occupant cannot leave without uncoupling the thongs, and so cannot forget to unlock the door to the room of the person sharing the bathroom.

ovation, frequently results in solutions that themselves give rise to more difficult design problems in the future. In the days before plastic was ubiquitous, waste baskets and trash cans were commonly made of metal, and they were emptied by being turned upside down into large collection barrels or bins. Throwing an apple core or a banana peel into a waste basket could leave on its bottom a reminder of lunch that lingered in the office air for days. Disposing of an “empty” can of soda in the waste basket often dripped a sticky mess onto the bottom. In time, a waste basket could become rather crusty and sticky, and washing the metal container, whose finish had become scratched, dented, and worn off during years of being banged about in the emptying process, only caused it to rust and become unsightly. When plastic bags became almost universally used as waste-basket and trash-can liners, they seemed to promise
not only a relief from unsightly and unsanitary conditions but also a more efficient and pleasant means for janitors and cleaning crews to empty out the trash. Full bags could just be lifted out of the waste baskets and replaced with clean bags. Larger trash containers in public places were to work in a similar fashion, and there was to be a gain in convenience on the part of both trash disposers and trash collectors. The former would be surrounded by cleaner waste baskets and cans, and the jobs of the latter could be done more easily and conveniently.

In practice, what seems largely to have happened is that the bags have altered the behavior of everyone concerned with their use and disposal, resulting, in some cases, in what is arguably an unforeseen decrease in the level of sanitation and appearance. Because the plastic bags, at least when free of rips and tears, do not leak, many people seem to have become much less thoughtful about what they throw into the trash. Half-empty yogurt containers, half-full cans of soda, and other lunchtime leftovers that might once have been taken to the restroom to be washed down the drain, seem more and more to be tossed away without a second thought. After all, the plastic bag will contain them and be removed before the mold or flies arrive. Many of those who empty waste baskets seem to have developed a different kind of expediency, emptying the waste basket of its contents the old way, by turning it upside down. The plastic bag is not always replaced, perhaps to save on supplies, or to save the time of having to fit another, often ill-fitting, bag over the waste basket, and thus to have more time to spend on other chores or pleasures. As a result, residue can now collect in the bottom of plastic liners, at least those that have not become punctured, and offices may be no more sanitary or fragrant than before.

The situation with public trash cans seems no better. The proliferation of fast and prepackaged food has increased the amount of food-contaminated waste. Since so much of this food and drink is not all that palatable to begin with, plastic-lined trash cans are frequently full of rather ripe and wet garbage. Where squirrels are legion, they often forage about in the trash cans, surprising quite a few passersby with the noises they create inside the dark receptacles and startling more by clambering out as footsteps approach. The squirrels, if not the sharp edges of waste, frequently puncture the plastic bags, which are usually full to overflowing, especially after long weekends. Being so full and foul, the bags are replaced with
clean ones, but an early-morning walk in the wake of the garbage pickup reveals a host of sticky trails converging from trash containers to wherever the truck was parked. Because so much of the trash is light and bulky, the garbage truck is equipped with a compactor that allows a good number of bags to be fitted into each truckload, but compacting a plastic bag is like squeezing a grapefruit half, and the liquid naturally squirts about and follows the law of gravity. The truck seems incapable of containing all the liquid, and so it leaks out the bottom and onto the pavement. This having been noticed by the trash collectors, they have come to park their truck over storm drains, so that the bulk of the liquid drops into the sewer. But in dry weather, the slop just sits there and cooks into a foul soup. By afternoon on some days, the stench can be unbearable.

Plastic trash bags that were ostensibly designed to improve the quality of our lives have thus altered our behavior and environment. The malodorous and unsanitary conditions of their disposal aside, the bags themselves seem to be a blight on the overwhelming majority of places, private and public alike. In order to hold their shape and contents, they are folded over the sides of the waste basket or trash can, and it does not seem possible to do this in an aesthetically pleasing way. The bags are often much larger than the receptacle, so that they may be gathered and closed for disposal, but the extra plastic must then be bunched up or extended halfway down the side of the container, curiously reminiscent of the way some old women used to roll their stockings halfway down their legs. Whether the bag is bunched or rolled, however, a waste basket designed to harmonize with a neat and businesslike office or courtroom decor, or a trash can designed to be as unobtrusive as possible in a garden or a tree-lined path, ends up looking like nothing more attractive than some packaging only half removed. By force of quickly developed habit, it seems that virtually every trash receptacle is now lined with a plastic bag, whether necessary or not. In a library that I frequent where food and drink are strictly forbidden, all the waste baskets are overflowing with filmy plastic bags into which nothing but paper is ever likely to be dropped. If ever there was a pervasive design success turned failure, it is the plastic bag, now poised for an evolutionary improvement.

The design of everything from fast-food packaging to litter containers must look beyond immediate use. Each artifact introduced into the universe of people and things alters the behavior of both.
Whether the alteration be malevolent or benign is not always evident at the outset, but its impact certainly can be better anticipated if designers look down the design road and well beyond their immediate objectives. Though the best designs deal successfully with the future, that does not mean they are futuristic. All too often, the uncritical adoption of new materials or devices to solve old or imagined problems can create newer and more complex problems in an altered environment. The look of the future has so frequently become the blight of the present that it behooves designers to look more carefully and thoughtfully beyond appearances and short-term goals to the substance of designs and their long-term consequences. The analogy with business is that one must look beyond the quarterly bottom line and think in terms of the company history that will one day be written.