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John Heskett

DESIGN

A Very Short Introduction

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Chapter 1
What is design?

One of the most curious features of the modern world is the manner is which design has been widely transformed into something banal and inconsequential. In contrast, I want to argue that, if considered seriously and used responsibly, design should be the crucial anvil on which the human environment, in all its detail, is shaped and constructed for the betterment and delight of all.

To suggest that design is a serious matter in that sense, however, is problematic. It runs counter to widespread media coverage assigning it to a lightweight, decorative role of little consequence: fun and entertaining – possibly; useful in a marginal manner – maybe; profitable in economic sectors dominated by rapid cycles of modishness and redundancy; but of no real substance in basic questions of existence.

Not surprisingly, in the absence of widespread agreement about its significance and value, much confusion surrounds design practice. In some subject areas, authors can assume common ground with readers; in an introduction to architecture or history, for example, although the precise degree of readers' knowledge might vary substantially, a reasonably accurate concept of what constitutes the subject can be relied on. Other subjects, such as nuclear physics, can be so esoteric that no such mutual understanding exists and approaches from first principles become necessary.

Design sits uncomfortably between these two extremes. As a word it is common enough, but it is full of incongruities, has innumerable manifestations, and lacks boundaries that give clarity and definition. As a practice, design generates vast quantities of material, much of it ephemeral, only a small proportion of which has enduring quality.

Clearly, a substantial body of people exist who know something about design, or are interested in it, but little agreement will probably exist about exactly what is understood by the term. The most obvious reference point is fields such as fashion, interiors, packaging, or cars, in which concepts of form and style are transient and highly variable, dependent upon levels of individual taste in the absence of any fixed canons. These do indeed constitute a significant part of contemporary design practice, and are the subject of much commentary and a substantial proportion of advertising expenditure. Other points of emphasis might be on technical practice, or on the crafts. Although substantial, however, these are all facets of an underlying totality, and the parts should not be mistaken for the whole.

So how can design be understood in a meaningful, holistic sense? Beyond all the confusion created by the froth and bubble of advertising and publicity, beyond the visual pyrotechnics of virtuoso designers seeking stardom, beyond the pronouncements of design gurus and the snake-oil salesmen of lifestyles, lies a simple truth. Design is one of the basic characteristics of what it is to be human, and an essential determinant of the quality of human life. It affects everyone in every detail of every aspect of what they do throughout each day. As such, it matters profoundly. Very few aspects of the material environment are incapable of improvement in some significant way by greater attention being paid to their design. Inadequate lighting, machines that are not user-friendly, badly formatted information, are just a few examples of bad design that create cumulative problems and tensions. It is therefore worth asking: if these things are a necessary part of our existence, why are

they often done so badly? There is no simple answer. Cost factors are sometimes advanced in justification, but the margin between doing something well or badly can be exceedingly small, and cost factors can in fact be reduced by appropriate design inputs. The use of the term 'appropriate', however, is an important qualification. The spectrum of capabilities covered by the term 'design' requires that means be carefully adapted to ends. A solution to a practical problem which ignores all aspects of its use can be disastrous, as would, say, medical equipment if it were treated as a vehicle for individual expression of fashionable imagery.

This book is based on a belief that design matters profoundly to us all in innumerable ways and represents an area of huge, underutilized potential in life. It sets out to explore some reasons why this is so and to suggest some possibilities of change. The intention is not to negate any aspect of the spectrum of activity covered by the term 'design', but to extend the spectrum of what is understood by the term; examine the breadth of design practice as it affects everyday life in a diversity of cultures. To do so, however, some ground clearing is necessary to cut through the confusion surrounding the subject.

Discussion of design is complicated by an initial problem presented by the word itself. 'Design' has so many levels of meaning that it is itself a source of confusion. It is rather like the word 'love', the meaning of which radically shifts dependent upon who is using it, to whom it is applied, and in what context. Consider, for example, the shifts of meaning when using the word 'design' in English, illustrated by a seemingly nonsensical sentence:

> 'Design is to design a design to produce a design.'

Yet every use of the word is grammatically correct. The first is a noun indicating a general concept of a field as a whole, as in: 'Design is important to the national economy'. The second is a verb, indicating action or process: 'She is commissioned to design a new

kitchen blender'. The third is also a noun, meaning a concept or proposal: 'The design was presented to the client for approval'. The final use is again a noun, indicating a finished product of some kind, the concept made actual: 'The new VW Beetle revives a classic design.'

Further confusion is caused by the wide spectrum of design practice and terminology. Consider, for example, the range of practice included under the rubric of design – to name just a few: craft design, industrial art, commercial art, engineering design, product design, graphic design, fashion design, and interactive design. In a weekly series called 'Designer Ireland' in its Irish Culture section, the Sunday Times of London publishes a brief, well-written analysis of a specific aspect of design. In a six-week period, during August and September 2000, the succession of subjects was: the insignia of the Garda Siochanna, the Irish national police; Louise Kennedy, a fashion designer; the Party Grill stove for outdoor cooking; the packaging for Carrolls Number One, a brand of cigarettes; Costelloe cutlery; and the corporate identity of Ryan Air, a low-cost airline. The range of subjects addressed in the whole series is even more bewildering in its diversity.

To that list can be added activities that appropriate the word 'design' to create an aura of competence, as in: hair design, nail design, floral design, and even funeral design. Why not hair engineering, or funeral architecture? Part of the reason why design can be used in this arbitrary manner is that it has never cohered into a unified profession, such as law, medicine, or architecture, where a licence or similar qualification is required to practise, with standards established and protected by self-regulating institutions, and use of the professional descriptor limited to those who have gained admittance through regulated procedures. Instead, design has splintered into ever-greater subdivisions of practice without any overarching concept or organization, and so can be appropriated by anyone.

Discussion of design on a level that seeks a pattern in such confusion leads in two directions: first, defining generic patterns of activity underlying the proliferation, in order to establish some sense of structure and meaning; secondly, tracing these patterns through history to understand how and why the present confusion exists.

To address the first point: design, stripped to its essence, can be defined as the human capacity to shape and make our environment in ways without precedent in nature, to serve our needs and give meaning to our lives.

Understanding the scale and extent of this capacity can be tested by observing the environment in which anyone may be reading these lines – it might be while browsing in a bookstore, at home, in a library, in an office, on a train, and so on. The odds are that almost nothing in that environment will be completely natural – even plants will have been shaped and positioned by human intervention and, indeed, their genus may even be a considerable modification of natural forms. The capacity to shape our world has now reached such a pitch that few aspects of the planet are left in pristine condition, and, on a detailed level, life is entirely conditioned by designed outcomes of one kind or another.

It is perhaps a statement of the obvious, but worth emphasizing, that the forms or structures of the immediate world we inhabit are overwhelmingly the outcome of human design. They are not inevitable or immutable and are open to examination and discussion. Whether executed well or badly (on whatever basis this is judged,) designs are not determined by technological processes, social structures, or economic systems, or any other objective source. They result from the decisions and choices of human beings. While the influence of context and circumstance may be considerable, the human factor is present in decisions taken at all levels in design practice.

With choice comes responsibility. Choice implies alternatives in how ends can be achieved, for what purposes, and for whose advantage. It means that design is not only about initial decisions or concepts by designers, but also about how these are implemented and by what means we can evaluate their effect or benefit.

The capacity to design, in short, is in innumerable ways at the very core of our existence as a species. No other creatures on the planet have this same capacity. It enables us to construct our habitat in unique ways, without which we would be unable to distinguish civilization from nature. Design matters because, together with language, it is a defining characteristic of what it is to be human, which puts it on a level far beyond the trivial.

This basic capacity can, of course, be manifested in a huge diversity of ways, some of which have become specialized activities in their own right, such as architecture, civil engineering, landscape architecture, and fashion design. To give some focus in a short volume, the emphasis here will be on the two- and three-dimensional aspects of everyday life – in other words, the objects, communications, environments, and systems that surround people at home and at work, at leisure and at prayer, on the streets, in public spaces, and when travelling. Even within this focus, the range is still huge and we need only examine a limited range of examples, rather than attempting a compressed coverage of the whole.

If this human capacity for design is manifested in so many ways, how can we understand this diversity? This brings us back to the second point mentioned above: design's historical development. Design is sometimes explained as a subdivision of art historical narratives emphasizing a neat chronological succession of movements and styles, with new manifestations replacing what went before. The history of design, however, can be described more appropriately as a process of layering, in which new developments are added over time to what already exists. This layering, moreover, is not just a process of accumulation or aggregation, but a dynamic interaction in which each new innovative stage changes the role, significance, and function of what survives. For example, innumerable crafts around the world have been widely displaced by industrial manufactures from their central role in cultures and economies, but have also found new roles, such as providing goods for the tourist trade or supplying the particular global market segment known as Arts and Crafts. Rapid developments in computers and information technology are not only creating exciting new possibilities in interactive design, but are also transforming the ways in which products and services are conceived and produced, in ways that supplement, rather than replace, the old.

Neither is it possible to describe a process with an essential pattern followed everywhere. There are significant variations in how the process of change occurs in different societies and also in the specific consequences change entails. Whatever the exact details, however, there is a widespread pattern for what existed before to continue in some form. It is this that helps explain much of the dense and complex texture of design, and the varied modes of practice under the rubric that confront us today. To ancient crafts and forms that survive and adapt are continually added new competencies and applications. A great deal of confusion in understanding design, therefore, stems from this pattern of historical evolution. What is confusing, however, can also be regarded as a rich and adaptable resource, provided that a framework exists enabling the diversity to be comprehended. A brief outline of the historical development of designing – that is, the practice and activity of creating forms – is therefore necessary.

Chapter 2
The historical evolution of design

There has been change and evolution on multiple levels throughout the history of mankind, but human nature has remained remarkably unaltered. We are much the same kind of people who inhabited ancient China, Sumeria, or Egypt. It is easy for us to identity with human dilemmas represented in widely different sources, such as Greek tragedy or Norse sagas.

The evidence too is that the human capacity to design has remained constant, although its means and methods have altered, parallel to technological, organizational, and cultural changes. The argument here, therefore, is that design, although a unique and unchanging human capability, has manifested itself in a variety of ways through history.

Any brief description of such a diverse spectrum of practice must inevitably be an outline, using broad brushstrokes and avoiding becoming enmeshed in detail, with the intention of indicating major changes that have occurred in order to understand the resultant complexity existing today.

An initial problem in delving into the origins of the human capacity to design is the difficulty in determining exactly where and when human beings first began to change their environment to a significant degree – it engenders continual debate that shifts with each major archaeological discovery. It is clear, however, that in this process a crucial instrument was the human hand, which is a remarkably flexible and versatile limb, capable of varying configurations and functions. It can push, or pull, exerting power with considerable strength or fine control; among its capabilities, it can grasp, cup, clench, knead, press, pat, chop, poke, punch, claw, or stroke, and so on. In their origins, tools were undoubtedly extensions of these functions of the hand, increasing their power, delicacy, and subtlety.

From a broad range of early cultures, extending back to about a million years, natural objects began to be used as tools and implements to supplement or enhance the capacities of the hand. For example, the hand is capable of clawing soil to dig out an edible root, but a digging stick or clam shell is also capable of being grasped to do the job more easily, in a sustainable manner, reducing damage to fingers and nails. The task is made easier still if a shell is lashed with hide or fibre at a right angle to the end of a stick, to make a simple hoe. It can then be used more effectively in wider circles from an erect working position. Similarly, the hand can be cupped in order to drink water, but a deep shell forms the same shape permanently and more effectively to function without leakage as a dipper. Even at this level, the process of adaptation involves the capacity of the human brain to understand the relationship between forms and functions.

In these, and innumerable other ways, the natural world provided a diverse source of available, pre-existing materials and models, full of potential for adaptation to the solution of problems. Once adapted, however, a further problem emerged, such as how to make a hoe more durable, less fragile, and less liable to fracture than a seashell. Another dimension set in, beyond simply adapting what was available in ready-made form – that of transforming natural materials into forms without precedent in nature.

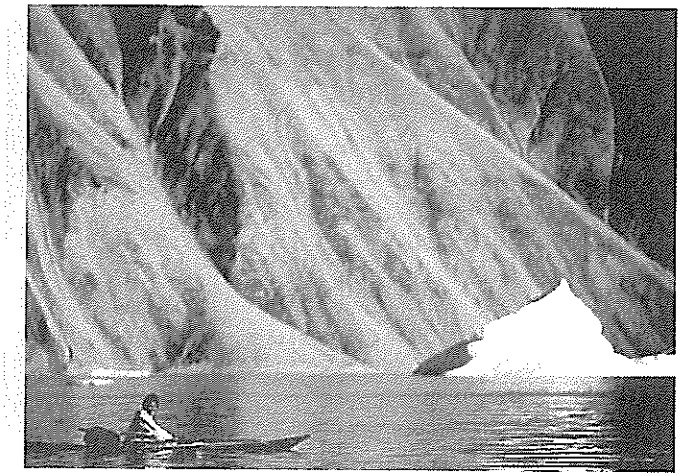
Another feature of much early innovation was the adaptation of techniques, forms, and patterns to new purposes and applications. An example was seen in the discovery in 1993 at an archaeological dig at Cayonu, a prehistoric agricultural village site in southern Turkey, of what is believed to be the oldest textile fragment extant, dating from around 7000 BC. The fragment was of linen cloth woven from domesticated flax, and the weave was clearly an adaptation of pre-existing basket-weaving techniques.

Other continuities are also clearly evident. Frequently, natural forms continued to be the ideal model for a particular purpose, with early artefacts made from metal or clay often shaped in forms identical to the natural models from which they originated, such as dippers being made of metal in the form of conch shells.

Humans, from earliest times, have created stereotypes of forms, fixed concepts of what forms are appropriate for particular purposes, as a counterpoint to their contrasting capacity for innovation. Indeed, forms frequently became so closely adapted to the needs of societies that they became interwoven with a way of life, an integral element of its traditions. In circumstances where life was precarious and people were highly vulnerable, the accumulated experience embodied in and represented by such forms was not lightly abandoned.

Nevertheless, over time, forms were adapted by intent or by accident, became refined, or were transformed by new technological possibilities, and new stereotypes would emerge to be adopted as a standard. These in turn would be adapted to specific local circumstances. In West Greenland, for example, each major Eskimo settlement had different versions of sea-going kayaks.

Emphasizing manual dexterity as a dominant feature of the crafts tends to underestimate two other developments crucial to enhancing human ability to transform an environment. Each



1. Greenland Eskimo kayak

represents a capacity to reach beyond innate human limitations. One was harnessing natural forces, the superior physical strength of animals and resources such as wind and water, to provide a supplemental level of power greater than the human body, and selecting superior strains of plants and animals for cultivation to provide greater yields. This required a process of enquiry and the accumulation of knowledge and understanding that could be applied to processes of improvement, in which writing and visual representation played a crucial role.

Linked to this, and, in the long run, of increasing significance, was the ability to move beyond an accumulation of pragmatic experience into the realm of ideas as abstractions, with the evolution of tools moving beyond their origins in nature, to forms that were totally new and uniquely human in origin. Abstraction enables capacities to be separated from specific problems, to be generalized, and flexibly adapted to other problems.

Perhaps the greatest example of abstraction is language. Words

have no innate meaning in themselves and are arbitrary in their application. For example, the words house, maison, and casa, in English, French, and Italian respectively, all refer to the same physical reality of a human dwelling and take on meaning only by tacit agreement within their society. The capacity to abstract into language, above all, allows ideas, knowledge, processes, and values to be accumulated, preserved, and transmitted to subsequent generations. It is also an integral element in understanding any process of making. In other words, mental skills and thought processes – the ability to use 'mind tools', which represent and articulate concepts of what might be – are as essential in any productive process as the physical skills of the hand and its tools, such as hammer, axe, or chisel.

In terms of design, abstraction has also led to inventions that are purely cultural, with no reference point in human physical form or motor skills, or in nature. Many concepts of geometric form probably derived from accumulated experience in practical work, before being codified and, in turn, fed back into other applications. The evolution of spear-throwers, such as the woomera of Australian aborigines, represents such an abstraction. It gave much greater power and accuracy in hunting and must have evolved in a long process of trial and error. The form of the wheel, however, has no immediately discernible precedent – human limbs cannot rotate upon their own axis and possible stimuli in nature are rare. The concept of infinite rotation is therefore an innovation without precedent. In other words, objects are not just expressions of a solution to a particular problem at any point in time, but can extend much further, into embodying ideas about how life can be lived in a dynamic process of innovation and refinement beyond the constraints of time and place.

Therefore, neither the hand alone, nor the hand allied to the other human senses, can be viewed as the source of design capability. Instead it is the hand allied to the senses and the mind that forms the coordinated trinity of powers by which human beings have

2. Simple weapons embodying technical sophistication: the Australian aboriginal woomera.

asserted ever-greater control over the world. From the origins of human life, flexibility and adaptation resulted in a proliferation of means and ends, with individuals and societies adapting forms and processes to specific needs and circumstances.

Early human societies were nomadic, based on hunting and gathering, and, in a shifting pattern of life in search of new sources of food, qualities such as lightness, portability, and adaptability were dominant criteria. With the evolution of more settled rural societies based on agriculture, other characteristics, other traditions of form appropriate to the new patterns of life, rapidly emerged. It must be emphasized, however, that tradition was not static, but constantly subject to minute variations appropriate to people and their circumstances. Although traditional forms encapsulated the experience of social groups, specific manifestations could be adapted in various minute and subtle ways to suit individual users' needs. A scythe or a chair could keep its basic, accepted characteristics while still being closely shaped in detail to the physique and proportions of a specific person. This basic principle

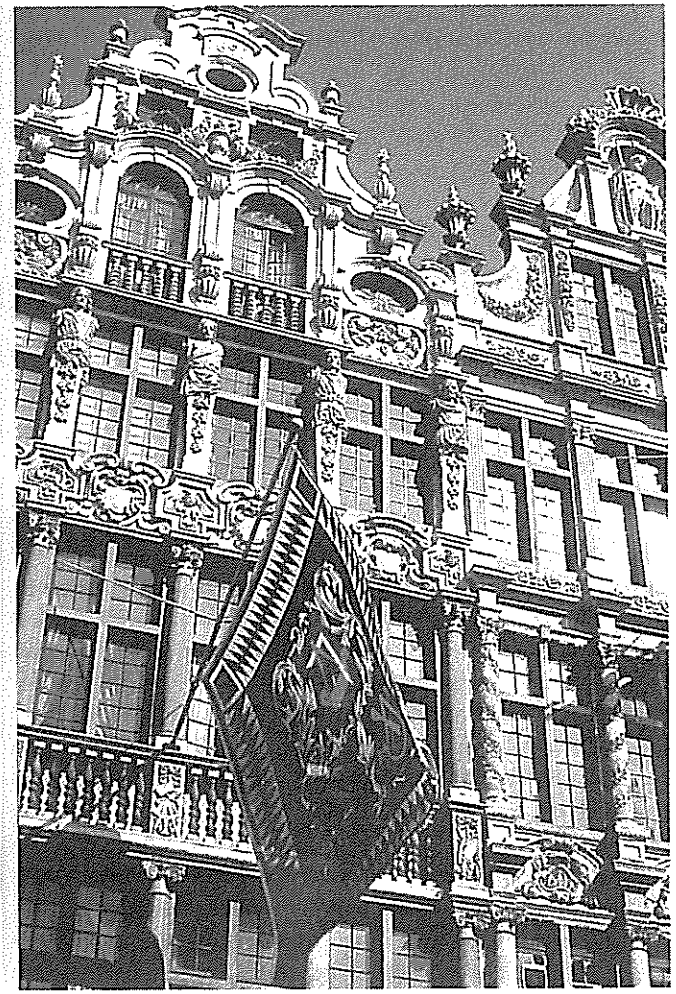
of customization allowed a constant stream of incremental modifications to be introduced, which, if demonstrated by experience to be advantageous, could be integrated back into the mainstream of tradition.

The emergence of agricultural societies living a fixed pattern of life was also capable of supporting concentrations of populations, allowing a greater degree of specialization in crafts. In many cultures, monasteries were founded that not only emphasized meditation and prayer, but also had more practical members who had considerable freedom to experiment and were often at the forefront of technological innovation.

More widespread were concentrations of population in urban communities, where more specialized, highly skilled craftsmen were attracted by the demand for luxuries created by accumulations of wealth. A frequent consequence was the emergence of associations of skilled craftsmen, in guilds and similar organizations, which, for example, already existed in Indian cities around 600 BC. Social and economic stability in an uncertain world was generally the main aim of guilds, whatever their variations across cultures. A widespread function was the maintenance of standards of work and conduct, and, in the levels of control some of them exerted, they prefigured the characteristics of many modern professional associations and represented an early form of licensing designers.

Guilds could often grow in status and wealth to exert enormous influence over the communities in which they were located. During the Renaissance, for example, Augsburg in southern Germany was famous for the exquisite skills of the gold- and silversmiths who were a major force in city life, with one of their number, David Zorer, becoming mayor in the early 1600s.

Ultimately, however, the influence and control of the guilds were undermined from several directions. Where trade between distant



3. Craft, wealth, and status: Guild houses, Grand Palace, Brussels

centres began to open up, it was entrepreneurial middlemen, taking enormous risks in pursuit of equally enormous profits, who began to dominate production. Industries based on handwork, often using surplus labour in rural areas, undercut guild standards and placed control of forms in the hands of entrepreneurs. In China, the ceramic kilns of Jingdezhen produced huge quantities of porcelain for export to India, Persia, and Arabia, and, from the sixteenth century onwards, to Europe. With distances opening up between maker and market, concepts had to be represented before being produced. Drawings and models sent to China from Europe specified forms and decorations to be shipped for particular markets or customers. With the diffusion of the printing press in late-fifteenth-century Europe, the circulation of drawings and prints allowed concepts of form to have wide currency. Individual designers published folios of drawings for forms and decoration that enabled practitioners to break with guild control of what could be produced and adapt a wide repertory of images for product concepts.

Efforts by governments to control and use design for its own purposes also reduced the power of guilds. In the early seventeenth century, the French monarchy used privileged status and luxurious facilities to attract the finest craftsmen to Paris in order to establish international dominance in the production and trade of luxury goods. Laws were introduced to promote exports and restrict imports. Craftsmen became highly privileged and often very wealthy in catering for the aristocratic market, and in the process were freed by monarchs from guild restrictions.

The most sweeping changes, however, came with the onset of industrialization in the mid-eighteenth century. The sheer scale of products generated by mechanized processes created a dilemma for producers. Craftsmen were generally unable or unwilling to adapt to the demands of industry. In addition, new sources of form had to be found to entice potential purchasers in the markets that were opening, especially for middle-class customers who represented the

4. Elegance as display: commode attributed to André Charles Boulle, Paris, *c.* 1710.

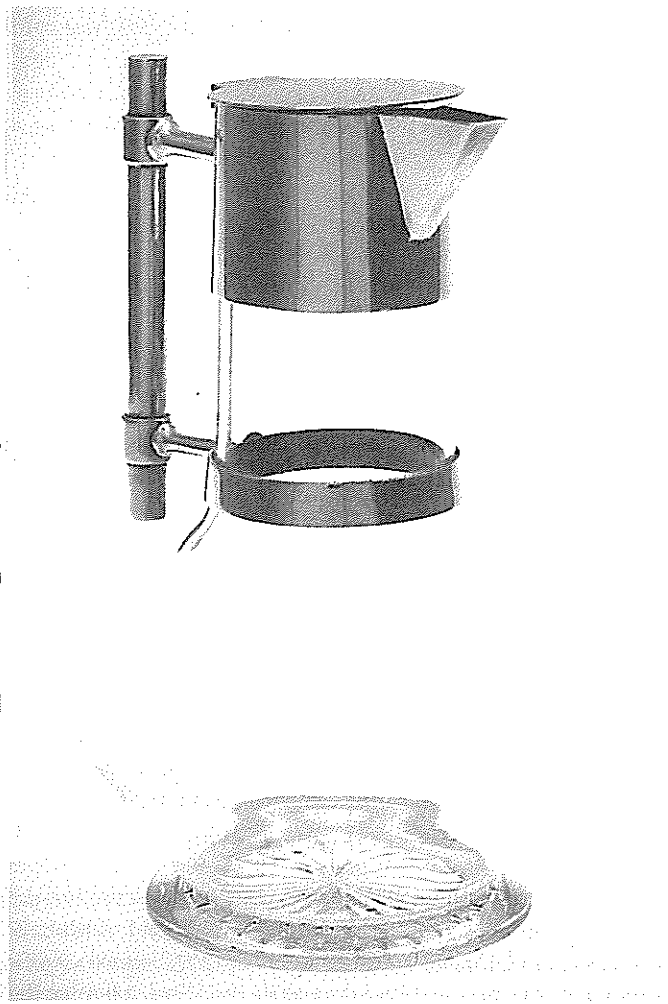
new wealth of the age. With competition becoming fiercer as more producers with greater capacity entered markets, and with varying tastes in fashion being necessary to pique the taste of customers, a flow of new ideas was required. Academically trained artists, as the only people trained in drawing, were increasingly commissioned by manufacturers to generate concepts of form and decoration in prevailing taste. The English painter, John Flaxman, worked on several such projects for Josiah Wedgwood's ceramic manufactory.

However, artists had little or no idea of how aesthetic concepts could be converted into products, and new circumstances, as ever, demanded the evolution of new skills. On one level, manufacturing required a completely new breed of engineering designers, who took the craft knowledge of clock- and instrument- making and rapidly extended it to solve technical problems involved in building

machines to ensure their basic functionality – building steam-engine cylinders to finer tolerances, for example, yielding greater pressure and power.

Where matters of form were concerned, two new groups emerged as influential. The first functioned on the basis of constantly seeking out new concepts that would be acceptable in markets, who were later to become known as style consultants. The second was a new generation of draughtsmen who became the design workhorses of the first industrial age. Working in factories to directions from style consultants, or from entrepreneurs or engineers, or using artists' drawings or pattern books, draughtsmen increasingly provided the necessary drawing skills for production specifications. Often, they were responsible for generating concepts of forms, based predominantly on copying historical styles or the products of successful competitors.

This specialization of function was a further stage in the separation between how product concepts or plans were generated and their actual production. Creating forms without understanding the context of manufacture, however, increasingly resulted in the separation of decorative concerns from function in many household wares, which led to a deep reaction against what many saw as the debasement of art, taste, and creativity by the excesses of industry. In Britain, the cradle of the Industrial Revolution, figures such as John Ruskin and William Morris established a critique of industrial society that had a profound effect in many countries. Their influence culminated in late-nineteenth-century Britain, with the establishment of the Arts and Crafts Movement, which promulgated the role of the craftsman-designer as a means of reviving a lost unity of design practice and social standards. The outbreak of the First World War in 1914, however, was such a bitter reminder of the savage power unleashed by modern industry that nostalgic images of a romanticized medieval idyll appeared increasingly indulgent.

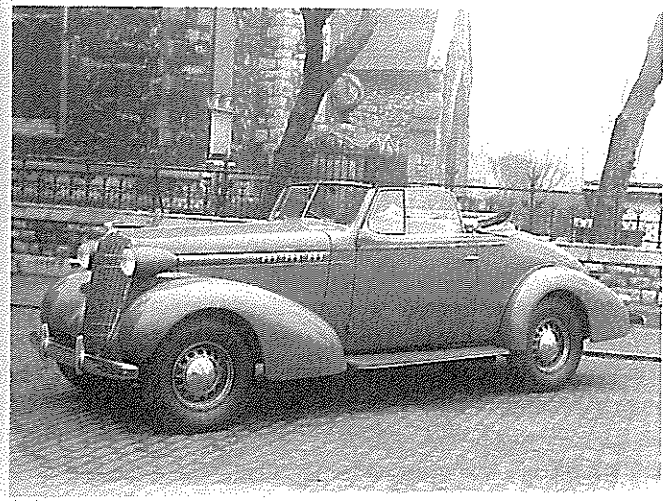


5. Functional simplicity: lidded jug by Christopher Dresser, Sheffield, 1885.

Nevertheless, a belief in asserting the power of art over industry continued – a concept that many idealistic artists hoped to realize in the aftermath of the Russian Revolution of 1917, using art through the medium of industry, as a means of transforming Soviet society. The idea also had a powerful role in the doctrines of the Bauhaus, a school founded in post-First World War Germany to address the problems of how society could and should be changed by harnessing mechanical production to spread the power of art throughout all levels of society. As an ideal, it resonated in the consciousness of generations of twentieth-century designers educated in the tenets of the Bauhaus, but the captains of industry were not ready to abandon their authority. The ideal of the artist-designer remains a significant element of modern design approaches, with virtuoso designers such as Michael Graves or Philippe Starck attracting wide attention. However, the ideal of the artist-designer as change-master of modern society has been little realized in practice.

If Europe stimulated a profound body of design theory that stressed the role of art and craft, in the United States, a new scale of industrial technology and organization evolved by the 1920s and profoundly changed design practices. Through mass production based on huge capital investments, giant businesses generated a wave of innovative products that fundamentally changed every aspect of life and culture in America, with reverberations across the globe. To stimulate markets, products needed to be changed constantly, with mass advertising campaigns exhorting consumers to buy with abandon.

A key example is the automobile, which was first developed in Europe as a custom-built plaything for the wealthy, but which with Henry Ford's Model T, first produced in 1907, became accessible to the masses at ever-decreasing cost. Ford, following the logic of mass production, believed his single model was appropriate to all needs. All that was necessary was to produce it more cheaply in ever-greater quantities. In contrast, Alfred P. Sloan, who became President of General Motors, believed new production methods



6. Styling becomes mainstream: 1936 Oldsmobile convertible

must adapt to different market levels. In 1924 he introduced a policy to reconcile mass manufacture of automobiles with variety in product. By using basic components across several lines, it was possible to give products a different surface appearance to appeal to different market segments. The outcome was the emergence of designers as stylists, specialists in generating visual forms that above all had to be visibly differentiated from those of competitors.

Some leading designers, however, such as Henry Dreyfuss, began to evolve a concept of their role encompassing a vision of social improvement by working in concert with industry. After the Second World War, designers extended their expertise beyond concerns with form and began to address problems of more fundamental importance to clients' businesses. Donald Deskey, who came from a background as furniture designer to head a large New York-based consultancy specializing in branding and packaging, and even an arch-stylist such as Raymond Loewy, argued that declining American manufacturing quality disillusioned purchasers who,

after being attracted by external style, found products unsatisfactory in use. They expressed concern about the decline of design awareness in American firms that preferred echoing competitors' products. As an alternative, they advocated design as a high-level strategic planning activity vital to the competitive future of corporations.

Awareness of change was generated by the American market becoming a competitive arena for products from around the world from the 1960s onwards. Large segments of American industry were subsequently decimated by imports from countries like Japan and Germany, where greater attention to production quality and a more holistic approach to design were the norm.

Yet these design approaches, so successful for a time, are also being superseded. Change is evident on many levels. By the 1980s, there began a sharp turn away from the geometrical simplicities of modernism, in a trend generally grouped under the title of postmodernism. This essentially and accurately describes what it is not, rather than what it is, since its main characteristic is an eclectic plethora of frequently arbitrary forms bearing no relation to utility. Much of this is justified by the concept of product semantics, drawing heavily on linguistic theory of signs and meanings. In other words, the meaning of a design is asserted to be more important than any practical purpose, although, since meaning bears little relation to any values, other than the personal inclinations of designers, confusion can ensue.

Another important trend is the effect of new technologies, such as information technology and flexible manufacturing, opening up possibilities of customized products designed in detail for small niche markets. In response, some designers are pioneering new approaches, evolving methodologies that base products on user behaviour, linking hardware and software, and working as strategic planners in the design of complex systems. Interactive design for electronic media is also confronting new problems of enabling users to navigate large and complex bodies of information. Such work is vital in interpreting new technology for potential users.

These changes are part of a repetitive historical pattern. As described earlier, the evolution of a new stage in design does not entirely replace what has gone before, but, instead, is layered over the old. This has been a recurrent pattern throughout the history of design. It not only helps explain why there is such a diversity of concepts and practices about what constitutes design in contemporary society, but also raises a question about the extent to which similar changes will confront us in the future. Exactly what will transpire is uncertain, but the signs are unmistakable – new technologies, new markets, new forms of business organization are fundamentally altering our world, and, without doubt, new design ideas and practices will be required to meet new circumstances. The greatest degree of uncertainty, however, revolves around the question: whose interests will they serve?

Chapter 3
Utility and significance

Although design in all its manifestations profoundly influences life on many levels, it does so in diverse ways. Again, it is necessary to find some bedrock of basic explanation in order to create a sense of order from the apparent confusion. A useful tool to this end is a distinction between utility and significance, which is an attempt to clarify the enormous confusion in discussion of design surrounding the term 'function'.

In 1896, in an essay entitled 'Tall Office Building Artistically Considered', the American architect Louis Sullivan wrote: 'It is the pervading law of all things organic, and inorganic, of all things physical and metaphysical, of all things human and all things super-human, of all true manifestations of the head, of the heart, of the soul, that life is recognisable in its expression, that form ever follows function. This is the law.'

These ideas were heavily conditioned by Darwin's theory of evolution with its emphasis on the survival of the fittest. By the late nineteenth century, ideas that the forms of fish or birds had evolved in response to their elements and that animals and plants were closely adapted to their environment were commonplace. In that context, it could be argued, form must indeed follow function, to the extent that the stripes of a zebra or the brilliant plumage of a parrot have a distinct purpose in the immutable laws of survival. Similarly,

Sullivan's concept of function encompassed the use of decoration as an integral element in design.

Sullivan's concept became encapsulated in the dictum 'Form follows function', and became part of the vocabulary of design, although it underwent something of a transformation in the process. Function in design became widely interpreted in terms of practical utility, with the conclusion that how something is made and its intended use should inevitably be expressed in the form. This omitted the role of decoration and how patterns of meaning can be expressed through or attached to forms. In this respect, it is possible to speak of an alternative dictum: 'Form follows fiction'. In other words, in contrast to the world of nature, human life is frequently inspired and motivated by dreams and aspirations rather than just practicality.

As a consequence, the concept of function has been one of the most hotly disputed terms in design. In the early twentieth century, a broad body of ideas, generally grouped under the umbrella term 'functionalism', articulated design concepts that rejected the florid decoration so typical of the nineteenth century. This could mean several things. For some designers, such as Peter Behrens, who was active in Germany in the early years of the twentieth century, classical architecture and design were a source of inspiration. Stripped of decoration, these could yield forms that were clean and geometrical, qualities considered desirable in contrast to the heady repertoire of styles typical of the nineteenth century that had been adopted indiscriminately from every canon and culture of history. In like manner, traditional forms could similarly be simplified and refined, as in the work of W. R. Lethaby and Gordon Russell, contemporaries of Behrens, and heirs to the English Arts and Crafts tradition. Both tendencies could simultaneously claim to be contemporary while still retaining continuity through references to the past.

Another more radical tendency that totally rejected the past was

articulated after the First World War in Europe. It was primarily associated with such figures as Theo van Doesburg, a Dutch theorist and leading member of the De Stijl group, Walter Gropius, the head of the Bauhaus school in Germany, and Le Corbusier in France. They evolved a repertoire of abstract geometric forms that in theory claimed to be the most suitable for the processes of standardized industrial production. Mass-manufacturing techniques, however, were equally capable of turning out complex, decorated forms, and indeed, in production terms, decoration could be advantageous. In the manufacture of plastic casings for radios in the 1930s, for example, heavy presses were used that made it difficult to produce a simple box-like shape. The problem was that, in the pressing, 'flow-lines' could appear as a consequence of the intense pressure applied, which marred large, plain surfaces. It was, therefore, better to use some means of breaking up large planes, by, for example, introducing steps into surfaces, or treatments such as stippling or hatching. The claim for clean, geometric form was in fact more significant as an ideology of the role of design in industrial society, rather than reflecting any innate characteristics of production methods. Instead of geometric form being the most suitable in practical terms, it was instead a powerful metaphor of what form in a mechanized age should ideally be. In this it was only one of several concepts that emerged – similar claims could be made with equal validity for the concept of streamlining, with its organic tear-drop curves and speed lines.

In place of dogmatic assertions that limit consideration of what form is considered permissible, a more inclusive definition of function is needed, which can be opened up by breaking the concept of function into a twofold division: the key concepts of utility and significance.

Utility can be defined as the quality of appropriateness in use. This means it is concerned with how things work, of the degree to which designs serve practical purposes and provide affordances or capabilities (and the consequences when they do not). A simple

example is a professional kitchen knife used to prepare food: its primary utility value is as a cutting tool. In order for it to work effectively, the blade needs to possess material qualities enabling a sharp edge to be maintained and for it to remain stable in use. (A blade that is too thin will wobble when pressure is applied, which not only is inefficient but can be highly dangerous.) The processes of use also require that the knife handle fits comfortably in the hand, providing a good, firm grip. On this level, utility is concerned primarily with efficiency, derived from technological and material factors. However, in use, such efficiency can also be a source of great pleasure. When all the detailed aspects are well integrated, the best kitchen knives become an extension of the senses, with a satisfying sense of rightness, fitting into the hand almost inevitably and giving a fine degree of balance and control. In such terms, efficiency moves into a different level of response and meaning, and, indeed, it is sometimes very difficult to separate utility and significance precisely, since in practice they can be closely interwoven.

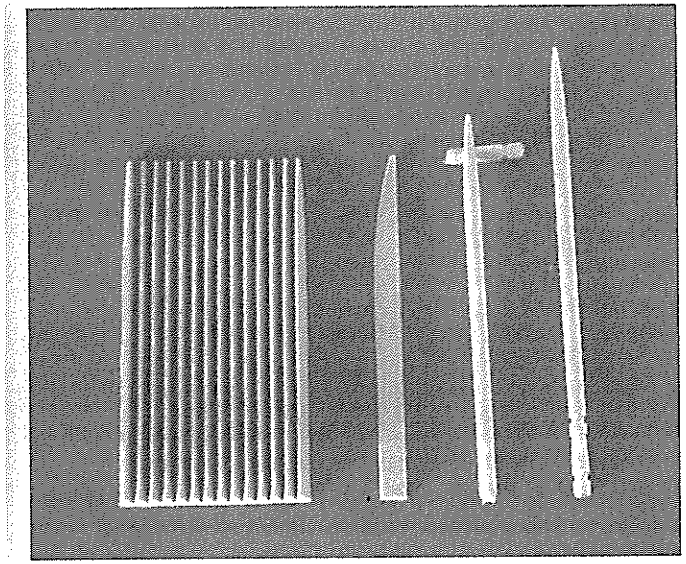
Significance, as a concept in design, explains how forms assume meaning in the ways they are used, or the roles and meaning assigned them, often becoming powerful symbols or icons in patterns of habit and ritual. In contrast to the emphasis on efficiency, significance has more to do with expression and meaning. Two simple examples of wooden toothpicks (and few forms are more basic) can illustrate the distinction between utility and significance, and also the ways in which they frequently overlap.

The first toothpick – or dental stick, as it is marketed – is produced by a Norwegian company, Jordan, a specialist in dental products. Under two inches long, it has a highly effective wedge form for the task of cleaning both teeth and gums, not only after a meal, but as part of an ongoing oral hygiene programme. This tiny object encapsulates a high degree of utility that is carefully designed in great detail for its intended task.

The second example is a traditional Japanese toothpick. Circular in

form and longer by half an inch than the Jordan example, it has only one end sharpened. The other is a bevelled cone, below which are turned incisions around the shaft. The pointed end is clearly concerned with the primary utility of the object, that of removing food caught between teeth, and at first sight the other end might appear to be purely decorative, its form having no readily discernible purpose. An explanation for this form, however, can be found in traditional patterns of dining in Japanese society. This became an expression of sensibility and refinement, with diners kneeling on tatami mats at lacquered tables. The vessels and artefacts used were frequently works of art in their own right, and none more so than the table, which could have exquisite patterns inlaid or painted on its lacquered surface. Laying chopsticks on such fine surfaces while eating was considered indelicate and so chopstick rests (another combination of utility and significance) evolved, enabling chopsticks to be laid down without the part that had been in the mouth coming into contact with the table surface. With the toothpicks, however, the solution was built in. The turned incisions of the toothpick enabled one end to be easily broken off, which could then serve as a rest for the pointed end after use. It demonstrates how even the smallest utilitarian objects are capable of simultaneously embodying values.

It is possible to find designs of many kinds defined solely in terms of utility or significance. Many examples of the former are products related to the performance of professional services, tools with highly specific purposes, such as a hand saw or a lathe, or medical equipment, such as an ultrasound machine. Where information has to perform a highly specific task, as in a railway timetable, the layout and type forms should be clean, simple, and directed wholly to imparting essential facts. A primary condition of utilitarian design is that it must effectively execute or support certain tasks. In contrast, a piece of jewellery, a porcelain figurine, or a frame for a family photograph has no such specific purpose – instead their purpose can be described in terms of contemplative pleasure or



7. Toothpicks

adornment. Whether their meaning stems from the social taste of a particular fashion or age, or an intensely personal evocation of relationship and meaning, their significance is intrinsic and not dependent upon any specific affordance.

In addition, between the poles where utility and significance can be clearly identified as the dominant characteristic, there are innumerable products that unite efficiency and expression in an astonishing range of combinations. A lighting fixture can be on one level a utilitarian means of illumination, but at the same time expressive in sculptural form of a highly individualistic, even idiosyncratic, nature. Tableware, cutlery, and glassware serve specific purposes while dining, but again can be manifested in a huge variety of forms, often with complex decorative patterns. Perhaps the classic example of our age is the automobile, which, besides having the very utilitarian task of carrying people and

8. The symbol of achievement: Rolls-Royce Park Ward 2000

luggage from place to place, has from its early years been an extension of ego and personal lifestyle. Rolls-Royce automobiles, for example, are not only superb examples of technical craftsmanship, but are a symbol of achievement in societies around the globe.

The significance of objects, the precise values imputed to them, however, will often vary considerably between different cultures. In the example of the Japanese toothpick given above, it is important to acknowledge the particular associations with sophisticated courtesy as an expression of Japanese culture. This raises important questions of how cultures evolve patterns of behaviour that become codified as rules or norms, with different cultures expressing values in their own specific way.

Meaning is not necessarily permanently fixed, however, since the significance of products can vary over time and space. A classic example was the Volkswagen Beetle, developed in 1930s Germany on the direct orders of Adolf Hitler, himself a motoring enthusiast. With production of the first prototypes in 1937, by the 'Strength through Joy' section of the German Labour Front, the official

workers' organization, it was promoted as an icon of the achievements of the Nazi Party. When production recommenced on a large scale after the Second World War, the VW was successfully exported to the United States in the 1950s and became a cult object. The design was virtually identical across this period of time, but the significance of the product underwent a remarkable transformation: from an icon of fascism in the 1930s – the 'Strength through Joy car' – to the loveable 'Bug' and hero of Walt Disney's Herbie films in 1960s America. The transformation went further with the redesigned Beetle that appeared in 1997, which also rapidly acquired cult status in the United States.

Basically, concepts of culture can be divided into two broad categories: first, the idea of culture as cultivation, resulting in the acquisition of ideas or faculties expressed in certain styles or behaviour believed to have particular value. A certain hierarchy is involved, in that a concert of classical music is considered more significant than a rock concert, or a piece of sculpture more than a work of industrial design. To some extent, design has begun to be drawn into this sphere, as evident by the number of art museums that have developed collections and held major exhibitions of design. Incorporating design into concepts of exclusivity, often under the term 'decorative art', however, has often more to do with museums' search for contemporary justification than with understanding the role of design in modern life.

The second major concept of culture, and the one underlying this book, is based on a more generalized view of culture as the shared values of a community. In this sense, culture is the distinctive way of life of social groups – the learned behaviour patterns expressed through such aspects, as values, communications, organizations, and artefacts. It encompasses the fabric of everyday life and how it is lived in all its aspects and allows consideration of a broader range of design and its role in people's lives. It has the virtue of including more elite definitions, but as part of a broader range of discussion.

The influence of cultural values, as manifested in interpretations and meanings of designed objects, is felt at many levels. In the past, and continuing to some extent, very different objects for broadly similar functions evolved around the world, resulting in great diversity. If one examines, for example, how food is prepared, in China it is still widely cooked in a wok, compared to a range of specialized pans used in European kitchens. The food prepared in the former is eaten with chopsticks, the latter with an array of often very specialized cutlery. In these and innumerable other ways, the specific forms are the expressions of particular cultural contexts, habits, and values that have evolved in their particularity over time.

Two main levels of difficulty occur in confronting the specific characteristics of time and place. The first arises from the need to conform to existing cultural patterns, to integrate or assimilate in ways that cause no disruption or offence. The second involves navigating unavoidable changes in such patterns, which becomes infinitely more complex.

Problems seem to be fewer and of lesser intensity if products are simple and utilitarian, which minimizes the possibility of cultural conflict. World markets for a vast array of luxury products, such as Hermes leather goods, that are inherently simple even though expensive can be treated in an undifferentiated manner.

The consequences of not acknowledging the power of cultural diversity can be surprising. In the early 1980s a Harvard marketing expert, Theodor Levitt, achieved considerable prominence with his ideas on globalization, among which he argued that differences were lessening and standard products across the globe were the marketing tools of the future. It was perhaps coincidence, but, at the same time, the management of the appliance manufacturer Electrolux became convinced that Europe should become a single market for refrigerator/freezer units, like the USA, where a few large manufacturers make a limited range of designs. A policy introduced in 1983 to push towards this end proved costly, however,

as the divergent cultures of Europe intransigently failed to follow the American pattern. In Northern Europe, for example, people shop weekly and need equal freezer and refrigerator space. Southern Europeans still tend to shop daily in small local markets and need smaller units. The British eat more frozen vegetables than elsewhere in the world and need 60 per cent freezer space. Some want the freezer on top, some on the bottom. Electrolux attempted to streamline operations but seven years later the company still produced 120 basic designs with 1,500 variants and had found it necessary to launch new refrigerators designed to appeal to specific market niches.

Packaging and visual imagery can also be a minefield. The former CEO of Coca-Cola, Roberto Goizueta, recounted that, when his company entered the Chinese market, it was discovered that the phonetic pronunciation of the company name translated as 'Bite the wax tadpole'. The problem was identified before major production began and the ideograms on packaging were sensibly adapted to mean 'Tasty and evoking happiness'.

In another example from East Asia, one of the stranger illustrations of the cultural perils of globalization was a leading brand of toothpaste, marketed for decades under the brand name of 'Darkie'. Its packaging had a cartoon-like illustration of a stereotyped, black-face minstrel with top hat, and teeth gleaming pearly white. In its market of origin nobody apparently found this troublesome, but Colgate-Palmolive's purchase of the Hong Kong manufacturer of this product in 1989 brought unexpected problems at home. A rumour rapidly spread in the USA that the company was selling a racist product and banner-carrying pickets appeared outside its New York headquarters. To appease American critics without destroying a well-known brand in Asia, Colgate-Palmolive sought to redefine the brand name as 'Darlie', with a visual redesign to match. The packaging image was modified to show an elegant man about town of indeterminate ethnic origin, but still in white tie and top hat and with gleaming teeth.

Globalization, however, should not be considered only in terms of problems of adaptation or conformity. Theodor Levitt was indeed partly right in pointing out ways in which trends in technology and communications were linking the globe together and in some respects radically altering notions of culture. The influence of globalization means that culture does not necessarily remain dependent on a specific environment, with everyone adhering to the same broad, homogeneous set of values and beliefs. It raises the possibility of having a culture different from those around us. Cultural multiplicity rather than homogeneity and an emphasis on cultural creation rather than cultural inheritance would appear on many levels to be patterns for the future. Any such transition, however, will not be simple or easy.

The role of design substantially contributes to such developments by creating change in values across national or ethnic boundaries. This can be on the level of products, such as motor cycles and television sets, but probably more powerfully from the constant imagery associated with global television broadcasts and advertising, as with CNN, the configuration of an online interactive site, such as Amazon.com, or the corporate identity of McDonald's or Coca-Cola. Their ubiquity and widespread appeal can create substantial friction and have attracted attacks from divergent sources, among them French nationalism, Russian fascism, and Hindu and Islamic fundamentalism. These all differ in origins and rationale, but have in common a resentment of new patterns of cosmopolitanism presented by the imagery of global design, in the name of protecting cultural identity. It would be a mistake, however, to identify all reactions to globalization with those of extreme groups. Many people are genuinely concerned about the loss of local control and identity to forces that frequently appear remote and not answerable for their actions. The utility of being able to watch new broadcasts from the other side of the world may not compensate for children being profoundly influenced by imagery and behaviour that can appear alien and threatening. Even on a more mundane level, it is easy to give offence. A major

advertising campaign in Japan for an American brand of soap had a man entering the bathroom while his wife was in the bathtub, behaviour that might be thought to express sexual attraction in the USA, but which was considered ill-mannered and unacceptable in Japan.

These reactions cannot be dismissed as the inevitable consequences of change. The role and power of technology are indeed a problem when the ability to communicate simultaneously around the world, a marvellous development by any standards, is regarded as a threat. There are also far too many products and services being placed on world markets in which little or no concern is evident about whether they are comprehensible or usable. An assumption of uniformity in global designs as a basis for solutions can indeed create new problems, when a little forethought could have ensured appropriate adaptation to local conditions.

Obviously, the ability of human beings to create meaningful form spans a very broad spectrum of possibilities. At their most profound level, forms can embody metaphysical significance, going beyond the boundaries of tangible form to become symbols of belief and faith, expressing the deepest beliefs and aspirations of humankind. Nothing in the specific form of totems from Pacific Island tribes or the North American plains, or of statues of Buddha or Shiva, or the Christian cross can even hint at the complexity of the beliefs and values they represent. Yet the significance of such symbols becomes regarded as an objective social fact, understood by all who share the beliefs they symbolize. At the same time, it is also possible for people to invest objects with intense personal meaning that need not conflict with broader patterns of belief in a culture.

In 1981, two Chicago sociologists, Mihaly Csikszentmihalyi and Eugene Rochberg-Halton, published the conclusions of a research project on the role of objects in people's lives, entitled *The Meaning of Things*. They wrote of

> the enormous flexibility with which people can attach meanings to objects, and therefore derive meanings from them. Almost anything can be made to represent a set of meanings. It is not as if the physical characteristics of an object dictated the kind of significations it can convey, although these characteristics often lend themselves certain meanings in preference to others; nor do the symbolic conventions of the culture absolutely decree what meaning can or cannot be obtained from interaction with a particular object. At least potentially, each person can discover and cultivate a network of meanings out of the experiences of his or her own life.

The capacity of people to invest objects with meaning, to become imaginatively involved in creating from an object or communication a sense of significance that can reach far beyon what designers or manufacturers envisage, has not been given m credence in the age of mass production and advertising. All too often the emphasis is on imposing patterns of meaning and conformity from the standpoint of producers. However, this hu capacity to invest psychic energy in objects is immensely power with significant ramifications for the study and appreciation of design. In an important sense, it can be argued that the outcom design processes, the end result, should not be the central conc of the study and understanding of design, but rather the end re should be considered in terms of an interplay between designer intentions and users' needs and perceptions. It is at the interfac of the two that meaning and significance in design are created. this reason, subsequent chapters exploring the outcomes of desi in more detail will not be organized according to the categories widely used to define professional design practice, such as grap or industrial design (although it will be necessary to discuss suc terms). Instead, the chapters are grouped in terms of generic concepts: objects, communications, environments, systems, and identities, in which the concept of users', as well as designers', response and involvement can be further explored.