The National college of Art & Design

Department of Industrial design

The Influence and Effects of Marketing on Product Design and Development

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Submitted to the faculty of Art and Design and Complementary Studies in Candidacy for the Degree of Bdes Industrial Design, 1995

Acknowledgements

I would like to thank Mr. Brendan Farrell, Industrial Designer, Allies Ltd. for his assistance in researching this thesis and more importantly for introducing me to the real world of design.

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INTRODUCTION

> ...the study of design and its history has suffered from a form of cultural lobotomy which has left design connected only to the eye, and severed its connections to the brain and to the pocket. It is commonly assumed that design would somehow be soiled if it were associated with commerce, a misconceived attempt at intellectual hygiene that has done no good at all. It has obscured the fact that design came into being at a particular stage in the history of capitalism and played a vital part in the creation of industrial wealth. Limiting it to a purely artistic activity has made it seem trivial and relegated it to the status of a mere cultural appendix (Forty, 1986, p. 6).

Design has, in the last century, been led and influenced by many issues such as the rational principles of the Bauhaus, however, it is commercial issues rather than other issues that have shaped design as a profession to to its present state. Design is referred to as a profession purely because that is exactly what it is, not a philsophy of life or a cult religion but a creative way for many to earn a living. Design is creative, but within the parameters of the clients objectives and manufacturing processes, and is part of a business evnironment to develop new products. This business environment is fueled by consumerism and it is the advanced state of the consumerist society we live in that has had the most impact and influence on desing evoluntion. This argument, that marketing is the major influence in design is supported by the above and is the subject of this thesis.

It is in the environment referred to that design exists and it is only in this context of a business environment that design can be examined, as it is in this thesis. To examine design in any other context would only result in wild conclusions without any real substance, similar to the conclusions of many a book written on design.

Design is concerned with the creation of new products or the upgrading of old products, products that may or may not necessarily improve society. There is the, all too common, argument that unessential consumer products should not be created and that the constant re-designing of consumer products, resulting in shortened product lifespans, is wasteful. Waste is an inevitable by-product of creativitiy and to create something new we usually make redundant something old. However, one does not in a sense need to waste but one does need to create, it is a natural instinct as old as the human instinct to trade. The need to trade is what is of more importance here plus the understanding that we all need to have desires, without desires we would not survive. The desire to possess is as natural as the desire to eat and it is this human need of desires which defends the principles of consumerism. One must have the freedom of free enterprise and without this fundamental right the development of products would cease to exist and subsequently design would become redundant as design is an essential ingredient of product development. There has been far too much argument on the negative

aspects of consumerism in design discussion in recent years and far too many writings, unfortunately, by people who obviously have very little real experience of professional design, accusing designers of exploitive and distasteful practice. This is quite ironic considering the importance of consumerism to design. There is also a tendancy amongst many designers to blow their own trumpets and grossly exagerate the impact and importance of design on society. Design is a simple profession, a means of earning a living, which has, like many other professions, a responsibility to society.

Marketing is used to sell products within a consumerist environment and it is marketing which has shaped design to what it is today. The role of this thesis is to examine how marketing has shaped design to its present state and how marketing influences the design and development of products. The thesis also examines how marketing and consumerist principles have effected design as a profession. To accomplish this we look at the current role of the designer and design itself to fully assertain the effects of marketing on design.

We are all aware of marketing and the consumerist society we live in through the advertising campaigns of such giants as Levis, Coca-Cola or Ford. Marketing is the fuel that keeps this dynamic environment alive and marketing, in every sense of the word, is the dominant force in the design and development of products. So what

is marketing and what is consumerism? Marketing is the actions of manufacturers or businesses to sell their products to the consumer. However, marketing is not only selling but creating the environment to sell in a process referred to as the four P's: Product; Promotion; Place; and Price. We are concerned, in this thesis, with all four but primarily with Promotion - creating the desire to buy and stimulating the market. Of the four this phenonmen has the most influence on design. Consumerism is the advanced state of the market economy that has evolved as a result of marketing.

The thesis begins with a reminder of the birth and evolution of consumerism and the ideology of the market economy. This ideology forms the very basis from which our contemporary design emerges and appreciating this basic ideology is crucial to a full understanding of the present condition. In examining the influence of marketing on product development and the creation of form we look at such products as the Sony sports walkman and the Landrover Discovery to emphasise the use of image and lifestyle in product design. The Patagonia fleece jacket is used to look at how market targeting is used to sell products and we examine the relationship between marketing environments and design consultancy evnironments through interviews with marketing executives and designers with reference to their products.

Finally, the relationship between market-led design and the present concerns of design as a profession are examined by looking at design itself and the effects of consumerist values on design. It must be stated at this early stage that design is a part of the business process, a business philosophy, and it is in examining this philsophy that one can appreciate the dominating influence that marketing has on design.

CHAPTER 1: CONSUMERISM

To appreciate the position that Design has found itself in the consumer world today, it is helpful to look briefly at the changes in design and the evolvement of design as a commercial tool. Design came into being at a particular stage in the history of capitalism and has influenced, and been influenced by, the development of the market economy but Design has not always been commercial and has seen a lot of changes since the days of the Bauhaus when it was considered to be the perfect solution to a functional problem. Nigel Whitley outlined the situation in Design for Society:

> The notions of choice and variety in the design and styling of products which we now take for granted were considered unnecessary, outdated and socially divisive by those committed to the modernist vision of technological progressivism (Whitely, 1993, p. 7).

Marcel Breuer, Bauhaus designer of such Modernist classics as the B33 chair called for "clear and logical forms, based on rational principles" . The logic of the forms would be determined from the objects primary function and ergonomic requirements. Breuer described Modernist design as "'styless', for it is expected not to express any particular styling beyond its purpose and the construction necessary therefore" (Benton, 1980, p. 226). This uncompromising Modernist approach to design in the 1920s and 1930s revealed a total absence of consideration for

the consumer in terms of the consumer's tastes or desires. As Whitely put it: "Modernist designers rejected any notion of design being dictated by the market as a debasement of standards" (Whitely, 1993, p. 10).

The consumers subjective response to an object, such functions as the objects social or cultural association or its status or prestige were ignored in Modernist design. Design in the Modernist world supposedly rational, unsentimental, functional and serious, was about how architects and designers felt people should live, it did not grow out of the way people do live. The psychological role of material culture was not acknowledged in this rational world with its rational aesthetic. However, an approach which altered the relationship with the consumer was developing at the same time in the United States.

In the United States in the later 1920s and during the time of the Depression, manufacturers found that a designer or, more commonly, a stylist could give a product what is now called "added value" (Whitely, 1993, p. 13). In other words the stylist could make a product more appealing, and so more likely to be purchased. To achieve this, the American designer took as a starting point symbols which were understood and enjoyed by the consumer. In the 1930s those symbols were derived from transport and fast travel, hence the vogue for streamlining with its connotations of speed, dynamism, efficiency and modernity. The craze stimulated a wealth

of streamlined products for which the style was functionally unnecessary or even wildly inappropriate, e.g, radios, electric heaters, vacuum cleaners, light fittings and even pencil sharpeners (Fig. 1). The advantage to manufacturers was pin-pointed by an astute businessman; "streamlining a product and its method of merchandising is bound to propel it quicker and more profitably through the channels of sales resistance " (Meikle, 1979, p. 72) .

Fig. 1. Pencil sharpener

The use of streamlining in the design of a pencil sharpener is inappropriate in the sense that speed and dyamism are unrelated to the functions of sharpening a

pencil whereas streamlining can be totally related to the design of an automobile or a train as their primary function is to move fast and efficiently. However, if streamlining a product sells to the consumer then it is appropriate to that product as it is the product itself that is for sale not its design specififcation.

Consumers were now able to purchase products which were more appealing and desirable. Their tastes were being addressed and even catered for. What is significant about this stage of design in the United States is that it develops the ideology of the market economy and this ideology forms the very basis from which our contempory design emerges. Understanding this basic ideology is crucial to a full understanding of our present condition.

The first American industrial designers such as, Norman Bel Geddes, Henry Dreyfuss, Walter Dorwin Teague and Ramond Loewy, often claimed that they were creating a better world by making products more efficient, easier to operate and more user-friendly. These designers may have been creating a better world but ultimately it was styling and giving a product a fashionable appearance that sold that product. When asked for his thoughts about aesthetics in product design, Loewy outlined his simple view which "consists of a beautiful sales graph shooting upwards" (Loewy, 1945). By giving a product a fashionable appearance, the designer was virtually guaranteeing that

it would look old fashioned in two or three years time, and so was building-in style obsolescence.

Nigel Whitely, in Design for Society, talks about a consumer society and point out that in less than a quarter of a century the American economic system had shifted from one based on scarcity and need, to one based on abundance and desire, and had also made this system socially acceptable. Moreover, what was taking place in the United States in the 1950s was seen as the model for other societies as soon as they could afford it. Obsolescence became part of the American way of design, and as other societies reached a comparative level of consuming, similar attitudes emerged. Whitely also stated that the "consumer society" was not being superseded by what he termed the "consumerist society". Consumerist society signifies an advanced state of consumer society and the market economy, in which private affluence on a mass scale is the dominant force in the market place (Whitely, 1993, p. 16).

In the book Design for Business which stated major problems for manufacturers and designers are essentially little different from their problems today. The major problem, Lippincott wrote, was of continually "stimulating the urge to buy now that the market was becoming saturated". The new situation was arising because we were now entering a period where we "will accept an economy of abundance rather than an economy of scarcity". He

envisaged the designer as working alongside researchers and advertisers with the common purpose of the "breaking down of new sales resistance to accelerate the flow of goods and services". Significantly, Lippincott realized that this had to take place at a psychological level:

> This is chiefly mental conditioning - largely a job of convincing the consumer that he or she needs a new product before their old one is worn out. It is a case of bucking age-old habits of thrift (Lippincott, 1947, p.23).

Lippincott was totally committed to a free enterprise capitalist system and was not in the least coy in stating that "there is only one reason for hiring an industrial designer, and that is to increase the sales of a product" (Lippincott, 1947, p.23).

No product, however well its aesthetic functions are fulfilled, may be termed a good example of industrial design unless it meets the acid test of high sales through public acceptance. Good industrial design means mass acceptance. No matter how beautiful a product may be, if it does not meet this test, the designer has failed of his or her purpose. There has been much discussion on the appropriate definition of good design in recent years. There never has, and never will be a philosophical definition of good design and there is far too much concentration on trying to define good design today. Design can only be measured by sales as it is in selling a

product, through marketing, which inspires and creates the need for design in the first place. However, the theory of good design will be further examined in later chapters.

CHAPTER 2: SELLING A LIFESTYLE

The establishment of consumerist design with its hallmarks of abundance and desire in the United States in the 1950s and in Western Europe in the 1960s brought about two other significant aspects of design which we now take for granted, that design is a social language and that design expresses lifestyle. Design as lifestyle in the consumerist society was demonstrated in Britain by the arrival of the style-conscious Habitat stores. The first was opened in 1964 during the era in which Britain evolved from being a "consumer" to a "consumerist" society (Whitely, 1993, p. 18). Terence Conran recalls that, "There was a strange moment around the mid-1960's when people stopped needing and need changed to want... Designers became more important in producing 'want' products rather than 'need' products, because you have to create desire" (Terence Conran, 1987).

An inevitable consequence of the birth of the consumerist society is that the increasing competition leads to greater group differentiation in market targeting and greater product differentiation. A product broadly aimed at an undefined mass is likely to fail because it does not satisfy any particular group or segment of the market. Market research, therefore, is carried out to establish a consumer profile in an attempt to ensure that

a new product fits its particular market target group. The lifestyle of the consumer becomes a key ingredient of the market segmentation, and the product or service is tailored to fit it. Product features and styling help to determine the products identity and to differentiate it from its competition.

The product is aimed at the established target group and the consumer identifies the product with a lifestyle that appeals to them. To aim a product at a target group the manufacturer must communicate with the consumer and this is done through advertising. The product can be advertised specifically at a target group if possible or at a mass public hoping that the target group will be reached. Manufacturers spend fortunes on advertising to 'fish' out the target group and sell their products and it is this 'fishing' that creates the marketing environment that we are all so aware of today.

Culture and lifestyle are now key determinants of new types of products and product development. By studying social trends in relation to lifestyle, manufacturers have been successful in anticipating desires before consumers are even the slightest bit aware that they might want the new product. Therefore, manufacturers must not only anticipate consumer demands but create them and because the marketplace is a dynamic environment a company needs to shape the consumers along with the products. According to Terence Conran "The marketplace is continually evolving

and competitors are always snapping at each other's heels; to be successful, constant fine tuning is required to meet the mood of the consumer or, better still, to tell him what that mood will be before he has realised it" (Conran, in Gorb, 1988, p. 140). Essentially what Conran is saying is that manufacturers must get ahead of their competitors by creating consumer desires instead of responding to them.

The emphasis on actively creating new desires in consumers rather than responding to identifiable and recognized desires has been the major development in consumer-led design during and since the 1980s. This is indeed true of the larger companies such as Sony, but the situation differs for the smaller company, as we will see in the next chapter. The classic example of creating a desire was the development of the Sony waterproof walkman with it's distinctive bright yellow colour (fig. 2). The number of consumers who actually needed a waterproof walkman would not have justified its manufacture and production. The National Economic Development Council (Britain) in their "Design for Corporate Culture" report (1987) in describing the 'Sony Sports' remarked that:

> The initial purchasers, no doubt, were those who are particularly concerned to express the fact that they are 'sporty'; 'outdoor' or 'healthy', perhaps even 'sexy', certainly 'fashionable' and perhaps also 'progressive'... with allowances for age, they are probably the same sort of people who buy a 'mountain bike' to get to the shops. (N.E.D.C., 1987)

Fig. 2. Sony Sports

The consumers who initially purchased the Sony Sports did not, as such, need that particular product. They wanted a personal stereo, something to listen to music, but they also desired an image of a certain lifestyle. Sony did not respond to this desire, they created it. By targeting a segment of progressive individuals Sony created a market trend in the personal stereo market. Sony interpreted consumer psychology with great skill.

Not only did Sony dominate market sales with the waterproof 'Sports', but because they created specific desire, they also dominated design influence in relation to styling of personal stereos. Competition followed suit and it was not long before Philips launched their sporty image range of personal stereos. For the first time the hi-fi market saw the introduction of bright catchy colours on a range of products and the enormous success of the Sony Sports probably led to the introduction of a more organic form commonly identified in todays range of hi-fi design.

It is certain that marketing will play a crucial role in the design of consumer-led products and that marketing will help to position a product in a cultural or market niche. It has become standard practice to differentiate consumers by lifestyle rather than socio-economic factors. There are four main lifestyle categories. The first are "traditionalists" or "mainstreamers", those who seek the predictable and reliable. The second are "achievers", those with wealth and the desire to surround themselves with objects which reflect their status. The third, "aspirers", are consumers who are highly status conscious and who seek the latest fashionable products. Finally, "reformers", are consumers with a conscience who buy recycled paper products and avoid aerosols. The categories are, of course, not discreet and a consumer may inhabit one lifestyle in some purchases and another one with others. Furthermore the consuming preferences of a

group may change because of environmental or health factors. Ozone-friendly products are now being bought by "mainstreamers" as well as by "reformers". The categories outlined are useful to form a broad lifestyle approach to marketing and the target group within the category must be identified by the manufacturer (Whitely, 1993, p. 26).

"Traditionalists" or "mainstreamers" are the largest demographic group in the market segmentation. Although they are the largest group, and obviously, the strongest sales force, they are usually not the target group because of the fact that they wait until a product is fashionable or socially acceptable before they purchase that product. CD players were first targeted at "achievers" who wanted to reflect their status by having the latest expensive hi-fi technology or "aspirers" who wanted to show off their latest possessions. By successfully targeting these leader groups the manufacturers were able to create a market trend and get into the "mainstreamers" market, where the real profits lay. Not all products pass through different target groups, but remain in one, often due to pricing strategy. A classic example of the "aspirers" product was the mobile phone which strongly assisted in putting the word "yuppy" into the Oxford dictionary.

Patagonia, the outdoor equipment and clothing manufacturers, whose target market is the hill-walker, responded to the fact that most hill-walkers fit into the "reformers" group, by developing a fleece jacket made from

recycled plastic bottles (Fig. 3). Now Patagonia's biggest competitors Lowe Alpine and Karrimor have brought out a whole range of recycled fleeces. It is an interesting scenario that Lowe Alpine's market consisted totally of mountaineers and hill-walkers a few years ago and their main product was the rucksack. The fleece jacket was developed through advancements in materials technology to arrive at a highly functional product that kept the mountaineer warm in bad weather conditions, while

Fig. 2. Patagonia `Fleece

being light in weight. Now the fleece jacket sales exceed rucksack sales due to the desire of the "outdoor" image lifestyle that controls this market today. The desire for this image was not created by Lowe Alpine but they responded quickly by developing a whole range of outdoor clothing. It is often difficult to define where the desire for a certain lifestyle or image comes from but it is up to smaller manufacturers to respond quickly to survive as they have not got the marketing power of companies like Sony.

The classic "selling a lifestyle" product of the 1990s is the Land Rover Discovery (fig. 4). The Land Rover Discovery is a highly functional and technically advanced off-road vehicle with its four wheel drive and differential axle. Like most mountain bikes the Discovery in most cases never leaves the tarmacadum. The Discovery has been successfully targeted at those inhabitants of semi-rural areas, such as north Wicklow or Yorkshire in England, who wear wax cotton jackets and aspire to be upper class country folk. Some, of course, are genuine but most are buying an image and not a functional vehicle. Many of the owners of Discoverys are "achievers" that have moved from their native urban areas to fashionable country homes and simply want to tell all their acquaintances that they are now doing so and can afford to. This desire for an image stems from the traditional English estate owner being associated with wealth.

Fig. 4. Land Rover Discovery

As competition increases niche groups become ever more carefully distinguished and targeted within the target groups price boundary, appearance continues to be the most important selling factor. A 1989 Henley Centre Report stated that:

> 30 years ago consumers were more concerned with a product's function - efficiency, reliability, value-for-money, durability and convenience - today's customers are prepared to pay more for a stylish product as they become more affluent and visually sophisticated. ... Aesthetics now play a greater part in portraying the perceived status of a particular product as functional differences between models are reduced ... The visual aspects of design have come to predominate as a means of attracting the consumer (Henley Centre Report, 1989).

It has been established that 'lifestyles' and selling an image plays a crucial role in product development but what really fuels the desire to own a new product? According to Colin Campbell in The Romantic Ethic and the Spirit of Modern Consumerism the cultural condition of consumer society is "longing". The spirit of the modern consumer is "an apparently endless pursuit of wants; the most characteristic feature of modern consumption being this instability" and the modern consumer's wants will never be satisfied "because of the apparently endless process of replacement which ensures that when one want is fulfilled, several more usually pop up to take its place" (Campbell, 1957, p. 60).

He goes on to say that the consumer:

> ...is characterised by an instability which arises out of a basic inexhaustability of wants themselves, which forever arise, phoenix-life, from the ashes of their predecessors. Hence no sooner is one satisfied than another is waiting in line clamouring to be satisfied; when this one is attended to a third appears, then subsequently a fourth, and so on, apparently without end. The process is ceaseless and unbroken; rarely can an inhabitant of modern society, no matter how privileged or wealthy, declare that there is nothing that they want (Campbell, 1987, p. 60).

As soon a want is fulfilled, it seems to die or become obsolete. The desiring mode constitutes a state of enjoyable discomfort, and that wanting rather than having is the main focus of pleasure-seeking. It is this endless wanting which fuels the desire to own a new product and is the backbone of consumerist society.

In relation to marketing-led design, it follows from the "longing" thesis that the consumer will opt for a novel rather than a familiar product "because this enables him to believe that its acquisition and use can supply experience which he has not so far encountered in reality" (Campbell, 1987, p. 60). Far from it being the novel product which most appeals to consumers, as Campbell suggests, it is often the familiar product with a 'freshened up' image. A balance has to be achieved between newness and reassurance. Raymond Loewy entitled his autobiography Never leave well enough alone because he realized that the designer was assured a regular income if the appearance of products was continually updated. Updating, as we will see in the next chapter, is an integral feature of the marketing-led design approach.

CHAPTER 3: FORM FOLLOWS FUNCTION?

The last chapter established that marketing techniques, are the driving force behind product development and design but what really creates form in a product? Obviously, form follows function, but to what extent? It often depends on the product but how much influence does the designer really have on product form?

According to Dennis Madden, Marketing Executive of Trintech the designer is approximately 55% responsible for the form of a product. Trintech are a small manufacturing company in Ireland who are mainly concerned with the development, manufacturing and marketing of electronic paying systems. In 1993 Trintech decided to expand their markets and replace their existing leading product with a "much sleeker modern terminal" for the German market. They also felt they were losing out in Ireland to competitors and "still just keeping up." They contracted Allies Limited, a Dublin product design consultancy, to re-design the product. (Madden, interview)

The existing model was felt to be too big and bulky and incorporated a separate printer. The key issue in the design brief was to reduce size, as the product usually

had to fit in small areas, and integrate the printer into the main housing as their competitors had previously done. Trintech felt that the German market was more 'design' conscious than the Irish and the product needed maximum use of design to give it a "soft and friendly look", to replace the hard edge look of the existing product. To achieve the "soft and friendly look" Trintech recommended the use of curved feature lines. (Gould, interview)

A prototype was produced integrating the printer roll set up with an angled interface. The product was tried and tested and from a functional point of view the paper roll set up was "good" but the angle of the interface was "wrong". Dennis also felt that the card reader slot, from a user point of view, should go from north to south rather than east to west. The prototype failed from a functional point of view but the "look, was getting there". (Madden, interview).

A design was produced which retained the simplicity of the paper roll set up, incorporated a north south card reader, and a user interface at a correct angle so as the user could operate whilst "looking down" on the product. (Madden, interview) The soft and friendly look had been achieved by use of the curved feature lines. The curved interface integrated with the printer gives the product a *designed* look, as opposed to the existing model. Both aesthetically and functionally the product successfully answers its brief (fig. 5).

Fig. 5. New Trintech Unit

When asked about aesthetics in an interview, Dennis Madden puts functionality ahead of "look". According to Dennis, "Aesthetics come absolutely number two, the product dies if the paper roll is a problem, functionality sells and although appearance may trigger impact selling, it will not bring major sales." He goes on to say that the "cost of producing the terminal and manufacturing techniques are key factors in the outcome of the shape of the product" but these are issues that the designer is well aware of and a skilful designer should keep production costs to a minimum. (Madden, interview)

So, who dictates the shape of a product, the marketing executive or the designer? In most cases the manufacturers or marketing executives get the final say, as they are paying for the service, but it is in the initial concept stage of the project where the designer, within the constraints of the brief, has the power to create form. According to Susan Lambert in her book Form Follows Function:

> Looked at from one point of view it is logical to single out the designer as the inspirational power in form-giving. Just as we can recognise the hand of a painter or sculptor so we can recognise that of a particular designer, be it, for example, through the ruggedly chunky lines of, say, the British Arts and Crafts designer, Sidney Barnsley, the refined elegant lines of, say, the German industrial designer Dieter Rams, or the anarchic whimsy of, say, the French super-star, Philippe Starck. If certain forms are characteristic of certain designers, it cannot be denied that they have played a significant part in shaping them (Lambert, 1993, p. 47).

So, if a particular form can be recognised from its designer, therefore the designer does indeed have significant impetus in form giving. However, design is part of a business process and a designer must collaborate with those in business if a product's design is to have a successful form. A designer must work in a business environment where he or she is required to make commercial decisions. Commercial success depends on collaboration and balance between design, marketing and manufacturing. Design is not simply about making pretty shapes and designers must have a good working knowledge of the manufacturing processes and marketing strategy of their clients and must also have a good understanding of consumer psychology. One would have to agree with Henry Dreyfuss in his account of the designers role:

> ...a brisk, suave character, brimming with confidence, who bustles around factories and stores, streamlining stoves and refrigerators that aren't going anywhere, reshaping doorknobs, and squinting at this years automobiles and arbitrary deciding that next years fenders should be two or three eights inches longer. Actually he is a businessman as well as a person who makes drawings and models. He is a keen observer of public taste and he has painstakingly cultivated his own taste. He has an understanding of merchandising, how things are made, packed, distributed, and displayed. He accepts the responsibility of his position as liaison linking the management, engineering, and the consumer and co-operates with all three (Dreyfuss, 1955, p. 14).

A designer is not an artist, but a creator of form within the constraints imposed by the manufacturer,

neither is he or she an engineer. A Designers role lies somewhere in between the role of artists and engineers in the sense that he or she is not totally concerned with creativity nor are they totally dominated by mechanics and structure. In the development of a new product, the designer is usually brought into the project after the marketing personnel have written a brief and must work within the constraints of the manufacturer. Susan Lambert refers to design as a "circular process in which the designer acts as the broker, any stage of which contributes to the final form of a product" (Lambert, 1993, p. 63). The influence of engineering processes and manufacturing limitations is, of course, of great importance and Lambert goes on to say that:

> Process can in addition provide the impetus to form. A manufacturer may have equipment standing idle and be looking for a product to use them. This was especially the case with plastics' manufacturers after the second world war. An entrepreneur may detect a market for a certain sort of product; on the other hand, the consumer, the person who selects on form rather than another, may be the driving force behind the defining of shape" (Lambert, 1993, p. 48).

The development of The Ashgard hurling glove reflects many of Lamberts points. In this case Aidan Kelly, Managing Director of O'Dare Ltd., the manufacturers of the product, worked a joint marketing venture with the designer, myself. The product was designed externally from, but in conjunction with O'Dare (Ireland) a sports goods manufacturer. The entrepreneur/designer detected a

market, designed a product, and developed it to suit the needs of the manufacturer and, of course, the consumer.

Fig. 6. Ashgard Hurling Glove

O'Dare are mainly concerned with the design and manufacturing of wetsuits and when patterns are cut from large rolls of material, there are many waste pieces. Therefore, O'Dare needed a 'small' product to utilise,

otherwise wasteful, off-cuts. The Ashgard hurling glove was perfect for O'Dare because, as a garment for the hand, it did not require large pieces of material. The Ashgard is a highly functional product ergonomically designed to add protection to the players of the fastest field sport in the world (fig. 6). The product had to do three things: perform, sell, and be economically manufactured. As hurling is a contact sport the products function was to add protection by impact resistance on the key areas of the hand, while not hindering the user. Although there was a great need for it, the product was the first of its kind and had to tackle the "macho" and "fearless" image that already existed within hurling circles. The requirement for impact resistance, plus the manufacturing techniques of neoprene, were combined to produce striped sections on the face of the glove, resulting in a stylish and functional product which answered its brief and more importantly sold to the consumer. The product could have been made in a number of different ways but it was the consumers 'need' to keep the tough image that dominated the styling and consequently the form of the product.

It is not always the case where a designer is lucky enough to be involved in every aspect of the development of a product and it is sometimes the case where they are only concerned with styling a product. In Japan, where Sony now offer over fifty new walkmans per year, the designer is often concerned with just styling, as product shelf-life is so short and consumer spending so high. In

referring to the Japanese consumer-electronics industry, in an article in Design magazine (June 1985), entitled "After the Chip" Caroline Palmer and Paul Walton outlined:

> ...once it has cracked the technology and the product concept. This used to leave 12 months for design. However, the demands of marketing have cut design time further. Designers are now lucky to get more than a couple of months, and to add styling only ... As a result, the production cycle only allows for real innovation once or twice in a decade (Palmer & Walton, June 1985, p. 37).

These products mostly incorporate minor changes of technology or styling, but the sheer volume of innovation and product updating creates an awful lot of, soon to be, unwanted products. By 1992 the Japanese Ministry of International Trade was exhorting manufacturers like Sony not to make changes to their products for at least a year after they are introduced. New product versions principally make use of styling to stimulate demand and these massive companies have the power, through marketing, to do so, but this is not the case in Ireland.

In an interview with Brendan Farrell, Managing Director of Allies Ltd., an Industrial Design Consultancy in Dublin, "Irish companies are not big enough to enforce new products on the market, rather they fit market niches that already exist." Brendan says that there are two levels of marketing; "Sony is different, they have marketing power and can make advances in new product development, and then educate consumers on new products. In Ireland the design brief is dictated by the consumer,

you give the consumer what he or she wants." When asked how much emphasis marketing has on product design in Ireland, he replied, "...great ideas won't sell, design led products fail, market led products succeed, you can't design a successful product in a vacuum." (Farrell, interview)

Referring to the Trintech paying system unit (Fig. 5) designed in Allies, Brendan says the product is a success because the design brief was market-led. Trintech started off with a very functional "boxy" looking product but they have now established themselves and can "afford to make a fashion statement". (Farrell, interview)

Tony Gould, Design Manager in Allies Ltd., says "it was nice to work on the design of the Trintech unit, there was quite a bit of scope for design." According to Tony, because of the German market, there was more emphasis put on the use of 'design' (in a styling sense) with the Trintech unit, there is not usually as much room for styling:

> ...usually in Ireland you are designing low budget functional products with little room for styling. You get no second chance in designing in Ireland, the designer does everything, he or she walks around the project in comparison to a multinational where they have in-house team work and full commitment to certain areas. The designer takes full control over the project and dictates the shape adhering to a low budget, the client wants low costs and maximum profit. Ireland still suffers from the 'Tractor Syndrome', manufacturers don't see the benefit of design (Gould, interview).

The "Tractor Syndrome" mentioned by Tony Gould refers to the lack of appreciation for design in product development. Manufacturers are uneducated of the benefits of good design and continue to retain the outdated belief that products evolve rather than are design. They do not see the necessity of investment in professional design process as they do not understand the design process in the first place, believing that they can develop products themselves for as little overheads as possible.

Steve McMahon, Marketing Executive with M.D.S. telephone systems, a client of Allies, emphasises that "the Industrial Designer must make the product look unique" (McMahon, interview). Steve makes the point that the customer defines what M.D.S. make and sell, the company answers the needs of the consumer. "The customer defines the brief", M.D.S. pass it on to the designer and the designer produces a shape or style of product which answers the customer needs. The M.D.S. Business phone, the "Opera", which was designed by Allies, directly answers customer needs. This is a highly functional product, people buy it for its function only, it does not provide an image or a 'lifestyle' and therefore must look functional. There is no ornamentation in the aesthetics of the phone and styling is kept to a minimum. The overall rectangular shape of the product reflects the rectangular shape of the buttons and the configuration of the printed circut boards. This phone is not a consumer

product but nevertheless has been designed to answer needs identified by market research. The phone is a huge commercial success being the largest selling business phone in the Netherlands and the second in Sweden (Fig. 7).

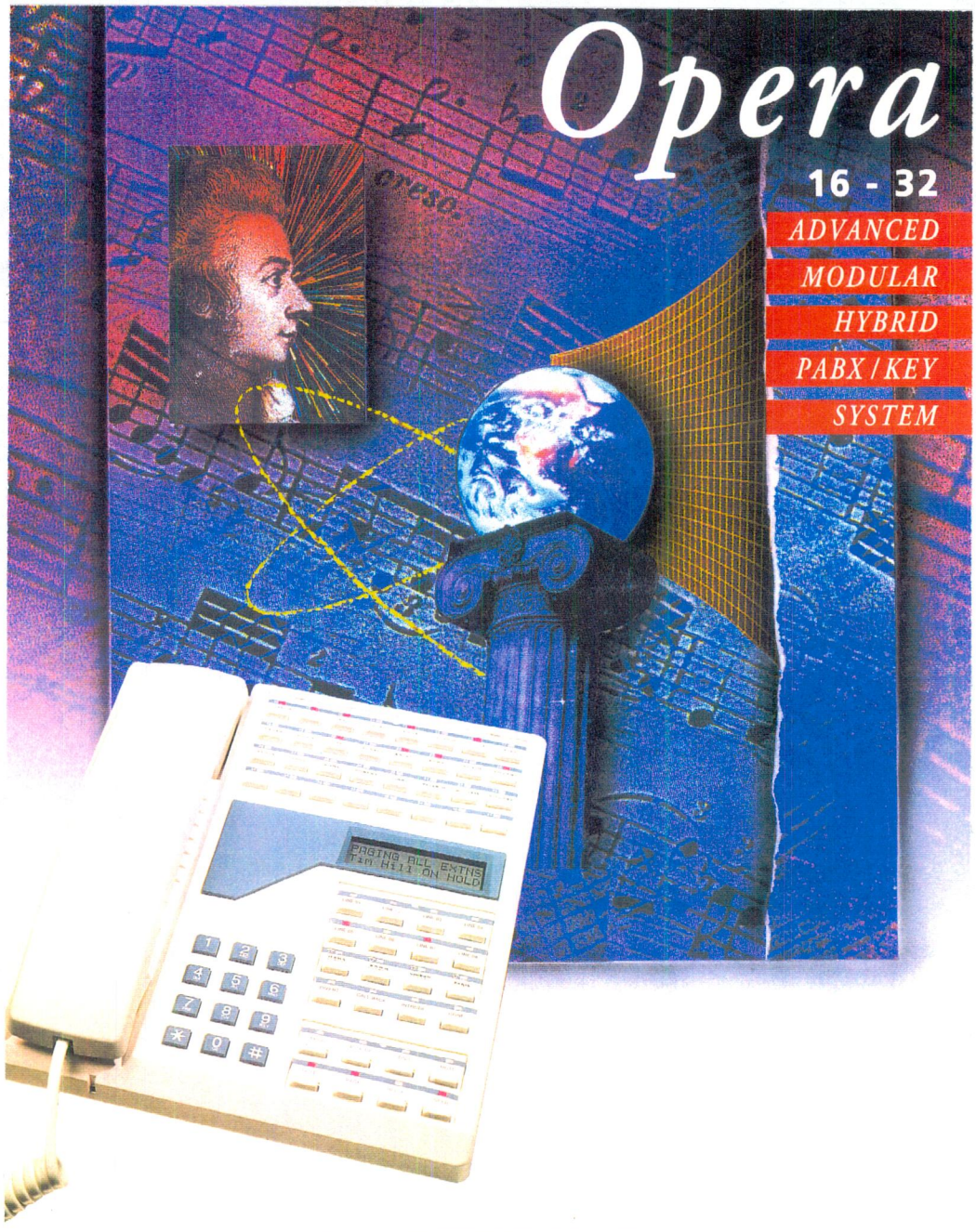

Fig. 7. Opera Phone

One interesting design brief that M.D.S gave to Allies which emphasises a very commercial aspect of market led design, was for a new domestic Telecom Eireann telephone. The phone was to be "conservative" in appearance and "lacking excitement", essentially the phone was to be unoriginal looking. The reason is simple and makes good business sense, but hardly good design sense, and is a good example of a product which is completely dictated by market needs rather than progressive design. Telecom rent their phones to their customers at a set price, if they come up with a "super-dooper" phone, everybody will want it and all the other perfectly working models will have to be replaced. Telecom's trick is to stimulate the market to a certain level, not too much, not too little, and hold on to their monopoly. (McMahon, interview)

A typical example of a marketing led product design of the nineties, of which the brief differed greatly from that of the Telecom phone is the "Flymo, HV 360" turbo compact lawnmower which, unlike the phone, uses styling to enhance consumer interests (Fig.8). Bruce Renfrew of Bruce Renfrew Associates, Flymo's long standing independent design consultants recalls that, "having presented a fully working prototype, we were briefed to finalise the styling. Market research had confirmed a profile which could be summed up as technically advanced yet approachable". The new house style which emerged was smooth and dynamic, friendly yet competent and completely

unaggressive. They carried the theme over into the redesign of the 350 and 420 wheeled products. The turbo compact is a good example of the results that can be achieved through a successful, long term collaboration between a design house and a manufacturers internal research and development facility. (Platt, 1994, pp. 26-29)

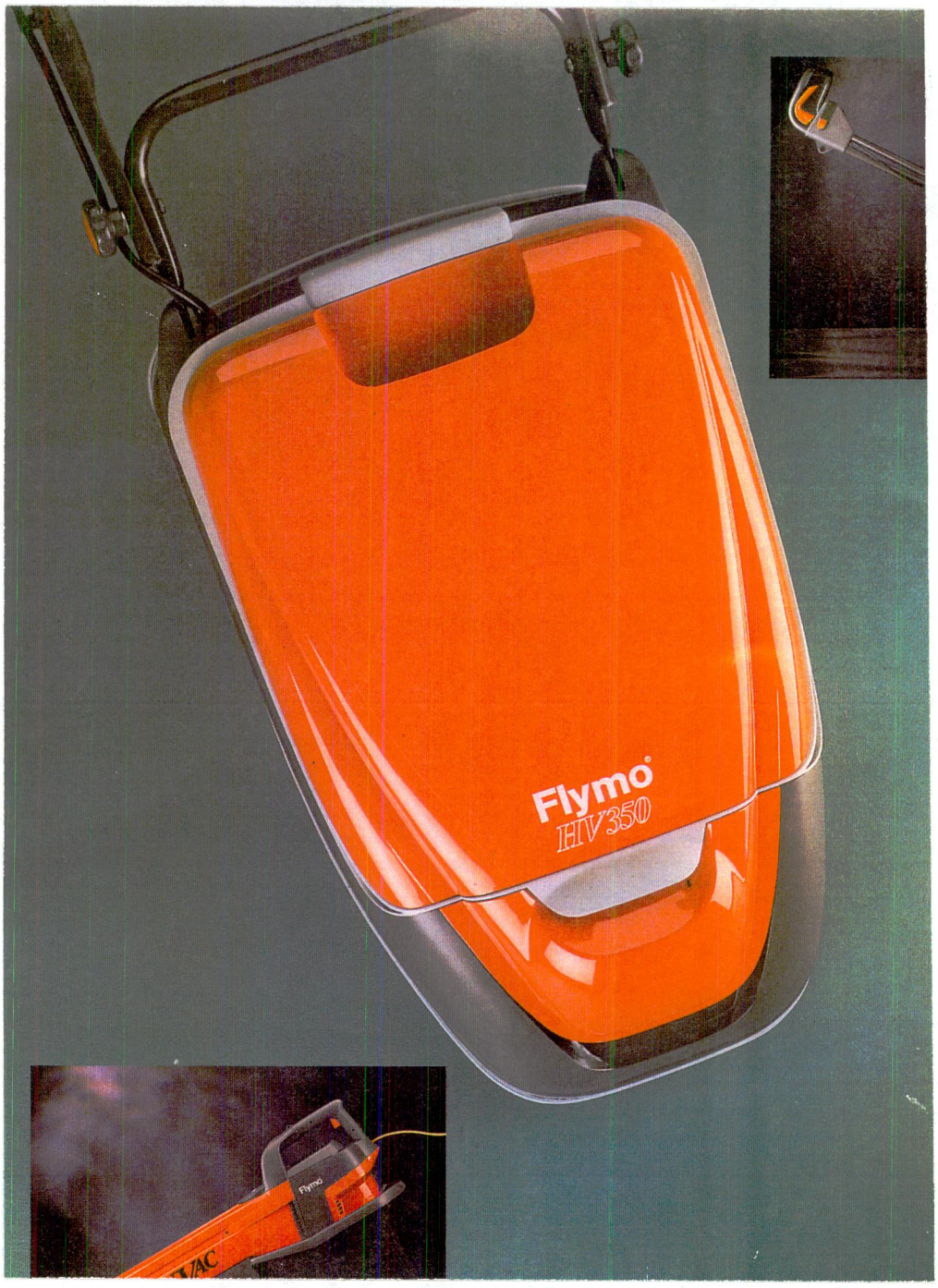

Fig. 8. HV 350 Flymo

The success of Flymo is due to the co-operation between their own in-house market research, which keeps them in touch with the consumer, and the Industrial Designer. Paul Howels, who manages the development in Flymo, explains, "I used to believe that design was an independent function, one person's vision. I don't anymore. Good design is the culmination of many inputs, not just pure aesthetic statement" (Platt, 1994, pp. 26-29).

CHAPTER 4: CONSUMER-LED DESIGN

Shimano has been one of the big international success stories of the past fifteen years. Today they are exporting their way to record profits, having grabbed around 75% of the global market in hi-tech bicycle components. The company's success is due to many factors but one of its strategic weapons has been the use of innovative design. It is this use of innovative design which stimulates the market and sells their products. Their innovative design is a result of team work and a good understanding of design process. According to Yoshizo Shimano, Executive Vice-President:

> The design management process is really just a simultaneous engagement of talents. Designing components involves sales and marketing people too, because we want to reflect voices in the market as much as we can. We need to be very sensitive to the trend of the market and to lifestyle changes. We've always believed that consumers know what they want, but that they have difficulty expressing it verbally. They have vague ideas and by thinking along with them and discussing it among ourselves, well, most of the time we come up with something to which the consumer says 'yes'. Every once in a while we make a mistake in reading what they want and the consumer says 'no'. But so far the success rate is better than 50% ... Design is very important, both appearance and function, then comes cost. Cost-wise we have to be competitive. So we set up targets for all of these considerations: design, performance, cost. Then we check the market again, to see if this is still the product the consumer wants (Vickers, 1994, p. 28).

Shimano's success is largely due to their understanding of consumer desires which enables them to create fashionable products. For a product to succeed in the 1990s, it must be fashionable. Nigel Whitely, in Design For Society remarks that consumer-led design relies heavily on a new product being fashionable. Light years away from the Modernists' quest for the unchanging type-form. He goes on to say that "the designer in the consumer-led age seeks the immediate and 'impactful' which, almost inevitably, are also the transitory and the ephemeral." Generally speaking, the greater the initial impact, the smaller the sustaining power. It seems at times as if design has become merely an offshoot of the fashion industry or as Whitely put it "the product as a fashion accessory to the decorated self." The importance of on-shelf appeal is replaced, after purchase, by on self-appeal (Whitely, 1993, p. 35).

It is indeed true that fashion predominates over function in the design and development of many consumer products. Jim Leonard, Research and Development Manager in Lowe Alpine Systems, stated that, "it is functionally correct to keep stitching to a minimum in the manufacturing of waterproof Gore-tex jackets as the machine needles pierce the membrane and the seams have to be later lined with sealing tape." So why is there an abundance of unnecessary seams on many of their jacket designs? "Consumers go through trends of wanting extra seams for no apparent reason other than style and it is up

to us, the manufacturer, to respond to their wants. We have to sell our products" (Leonard, interview).

The Lowe Alpine performance waterproof jackets are a good example of functional, ergonomically designed products that have inherited unnecessary design features as a result of fashion. However, not all consumer products sacriface functionality to the users desire to be fashionable. In this respect it cannot always be said that design has become merely an offshoot of the fashion industry as functionality is never totally sacrifaced and fashion is never the overriding factor in design.

The National Economic Development Council's report on "Design for a Corporate Culture", mentioned earlier in chapter two, confirms the above. In the section of the report which deals with "Designing 'Lifestyle' products", it pronounces:

> It is not so much a question of fashion (which suggests that design is about colour and styling) but of 'lifestyle'. Designers today need more than ever to understand the more complex motivations that prompt consumer purchase decisions, such as the development of a distinctive self-image (N.E.D.C. Report, 1987, p. 74).

The implications of continual redesigning as a way of stimulating desire, and as a way of creating longing and increasing consumption is of concern and the report acknowledges this:

> Some designers bitterly condemn this competitive emphasis on shortening product lifespans. Since it is viewed as wasteful, distasteful and 'exploitative'. Whatever the rights and wrongs of the matter, for most companies it is now a fact of company life that can't be made to go away by refusing to play the game (N.E.D.C. Report, 1987, p. 76).

Quite simply, design as a profession is business. A Designer is a person like everybody else who needs to make a living. Design in its present state would cease to exist if it were not for consumerism and the market economy. Regarding this it is quite arrogant of many designers to constantly put down consumerism as "exploitative", "wasteful" and "distasteful". Of course, there is the argument that design should not exist in this present state at all, that design should be progressive but without consumerism to fuel the design industry design would be left to an elite few who would dictate product form and design issues to the detriment of society as a whole.

Consumer-led design, virtually by definition, promotes the production of anything that can be fitted into a market. Some designers claim that this is immoral but the manufacturer would argue that for the designer to make moral judgements is to interfere with the consumers right to choose for himself or herself in a free society. This view implies that companies are following where consumers are leading but it is marketing, not the consumer, which is the driving force. Therefore, this view

that consumer-led design as a system facilitates freedom of choice should be regarded with some scepticism. However, what is more important to society than the consumers right to chose is the right to trade. Free enterprise is vital to society where manufacturers and consumers are free to buy and sell in a competitive environment.

The effect that consumer-led design has on people is a matter of controversy. Since mass production began in the nineteenth century, design moralists have warned of the dangers of materialism and selfishness. There is a widespread view of capitalism and its effects, where progress is conceived as a seeking of material possessions and freedom as the ground for endless irresponsible pleasure and that consumerist tendencies are to do with status and make people more materialistic and greedy. Colin Campbell in his book, The Romantic Ethic and Spirit of Modern Consumerism, referred to earlier, holds the interesting view that "the spirit of modern consumerism is anything but materialistic. The idea that contemporary consumers have an insatiable desire to acquire objects represents a serious misunderstanding of the mechanism which impels people to want goods." Campbell feels that consumers basic motivation is the desire to experience in reality the pleaurable dramas which they have already enjoyed in imagination, and each new product is seen as offering a possibility of realising this ambition. However, since reality can never provide the perfected

pleasures encountered in daydreams, each purchase leads to literal disillusionment, something which explains how wanting is extinguished so quickly and why people disacquire goods as rapidly as they acquire them (Campbell, 1987, p. 90).

For most people materialism is more of an attitude and a belief than a collection of quantity. The objects that one possesses or lusts after are important because they make a social statement about status; how you see yourself and who you are. Materialism, therefore, is likely to combine possessing and longing. It is possessing and longing to possess that creates desires which fuel materialism. Desires are natural and essential to survival and the desire to possess is part of being human. Consumer-led design is based on human desire and desire is what drives humanity. Not all desires are good, the desire to murder, of course, is bad and society has the right to judge one who desires to kill. One does not need to fulfill all their desires to survive and one does not need to fulfill all their longings with possessions. However, what is more important is that one must be given the freedom to long to possess and to eventual possession as this desire is not morally wrong like the desire to kill. Therefore, consumers and manufacturers must be able to participate in free enterprise and to inhibit this environment would be to destroy one of humanities basic rights.

It is peoples possessing and longing that fuels the constant revamping and re-styling of products which dominates the work load of an Industrial Designer today. According to Richard Seymour of Seymour Powell, the Industrial Designer is concerned with "the arrangement of physical elements in such a way to provide a mechanism superior to what was there before" (Evamy, 1994, p.14). This is what most Industrial Designers aspire to, but, in truth, it is probably a fairytale image, as marketing dominates product development, and the Designer is contracted by a manufacturer whose main concern is to sell the product. This is not to say that a product, in which its physical elements were arranged "in such a way to provide a mechanism superior to what was there before", will not sell or be a success, but it is often the marketing effort of the company that sells the product by telling the consumer that he or she wants their product. It is mostly fashion that sells a product rather than intelligent features of the design such as ergonomics and functionality. The problem is that people, and manufacturers, are not as design aware as they could be, and do not always appreciate ergonomics and functionality.

So, what is `good design` and what is the role of the designer? Good design could be described as a product that performs functionally, ergonomically and has an aesthetically pleasing appearance. However, there is simply no point in designing a product that performs functionally, ergonomically, and has an aesthetically

pleasing appearance if nobody is going to possess and subsequently use it. Therefore, if a design does not sell it can not be described as good design as it would have no reason to exist without an end use. Simultaneously, not every product that sells can be termed good design, for instance, the Allesi kettle sold worldwide despite the fact that its functionality was questionable. Likewise not everyone will find a certain product to be ergonomically satisfying or aesthetically pleasing. No product will completely satisfy everybody's needs. Therefore, as mentioned earlier, there can be no realistic definition of good design and design can not truthfully be defined as good or bad. Design must simply consist of answering a brief, set by the client, to the best of the designers ability, compromising where he or she must, in a responsible manner.

There is some confusion today over the role of the Industrial Designer and one could say that design is suffering form an identity crisis. Misha Black comments that: "Designers should see their place within the social pattern of their country, Industrial Design is not a job for pale aesthetes whose aim is only to impress and earn the approbation of their own coterie" (Evamy, 1994, p. 14). Designers, like everybody else, have a responsibility to society. They must preserve life and adhere to the progression of the the planet and should not be in the practice of designing products that are a detriment to society. There is an argument that

consumerism itself is a detriment to society. It is not the principles of consumerism that are bad but its by-products, like greed or industrial waste. Consumerism can exist without such by-products. However, the impact on society of these by-products is not the subject of this thesis, rather it is the relationship between design and consumerism which is being examined. The designer must have a responsiblity within the environment of consumerism as the present state of design is a product of that environment. The designer must design within the parameters of what they believe to be morally correct.

According to Michael Evamy, in an article in Design magazine, which examines the role of the designer:

> Everything was quite straightforward 40 years ago; the designer was in Reyner Banhan's words, 'the servant of his mass public'. Most industrial designers before 1960 were employed in-house by manufacturers. But in the fifties information gleaned from 'motivation research' (market research) which was starting to be used as the basis of comprehensive briefs for designers, which in turn provoked questions about the designer's role. Pop artist Richard Hamiltan was one of those who saw this development as denying the designer creative freedoms that were valuable to the product. 'The designer cannot see himself just as a cog in the machine which turns consumer motivation into form, he feels he is a creative artist (Evamy, 1994, p. 14).

A designer is in some sense a "creative artist" of form but he or she must create within the boundaries of the marketing-led design brief. This is the real challenge to the designer today. It is true that the designer may not have as much 'scope' to be creative,

nevertheless, he or she is a creator of form with a social responsibility, appreciating that his or her design will have an effect on people.

Adrian Forty makes the point that:

> Those who complain about the effects of television, journalism, advertising and fiction on our minds remain oblivious to the similar influence of design. Far from being a neutral, inoffensive artistic activity, design, by its very nature, has much more enduring effects than the ephemeral products of the media because it can cast ideas about who we are and how we should behave into permanent and tangible forms (Forty, 1986, p. 6).

Design has a effect, like many other activities, on people and on the world. "If industrial design is to set itself up as a profession, it must work out whether or not it is a servant of industry and whether or not it is a profession which faces up to moral issues, what is important however, is that the designer should never become the tool of the marketing profession, a clown, prostitute or stylist" (Carter, 1984). This designer's view makes sense in that it recognises the conflict between industry and responsibility while pointing out that the designer should never become a slave of marketing. There are, however, a number of designers and writers who grossly exagerate the impact that design has on society probably because they feel obliged to emphasise the vitality of their professions. Design is not as important to society, neither does it have as much impact as is often claimed, and there are many professions of far greater importance. Nevertheless, design has a

Conclusion

Design has evolved from a solution to a functional problem, to an aid to increased profits in a consumer market. Design in the Modernist world supposedly rational, unsentimental, functional and serious was about how designers feel people should live, it did not grow out of the way people live. The psychological role of material culture was not acknowledged in this rational world with its rational aesthetic. An approach which altered the relationship with the consumer developed in America and manufacturers found that a designer, or more commonly, a stylist could give a product added value (or perceived added value). The approach in the United States developed the ideology of the market economy and this ideology forms the very basis from which our contemporary design emerges.

Style obsolescence became part of the American way of design, and as other societies reached a comparable level of consuming, similar attitudes emerged. The consumerist society evolved and stimulating the urge to buy has become the main force behind design.

Increasing competition leads to greater group differentiation in market targeting and greater product differentiation. Market research is carried out to establish a consumer profile and the lifestyle of the

consumer becomes a key ingredient in the marketing mix. Culture and lifestyle are now key determinants of new types of products and product development. By studying social trends in relation to lifestyle, manufacturers have been successful in anticipating desires before consumers are even the slightest bit aware that they might want the new product. Therefore, manufacturers must not only anticipate consumer demands but create them, and because the marketplace is a dynamic environment a company needs to shape the consumers along with the products.

The cultural condition of consumer society is 'longing'. The spirit of the modern consumer is an apparently endless pursuit of wants, the most characteristic feature of modern consumption being this instability. The modern consumers wants will never be satisfied because of the endless process of replacement which ensures that when one want is fulfilled, several more usually appear to take its place.

Image sells products, and aesthetics now play a greater role in portraying the perceived status of a particular product. The visual aspects of design have come to predominate as a means of attracting the consumer. Nevertheless, a product must work, functionally, to be a commercial success.

In most cases the marketing executive has the final say in dictating the shape of a product but is in the

initial concept stage where the designer has the inspirational power in form giving. Certain forms are characteristic of certain designers, as they are of artists. Designers are business people as well as persons who make drawings and models. They are keen observers of public taste and have cultivated their own tastes. They have an understanding of how things are made, packaged, distributed and sold. They accept the responsibility of their position as a liaison, linking the management, engineering and the consumer and co-operates with all three groups.

Manufacturing processes play a major role in dictating product form, simultaneously process can provide the impetus to form. A manufacturer may have equipment standing idle and be looking for a product to utilise them.

Demands on marketing have left less time for design as product shelf life reduces, requiring faster product development and leaving only the styling for the designer. Consumer-led design relies heavily on a new product being fashionable. Lifestyle is presumed to be the only desirable state of being in the late-twentieth century and it seems at times as if design has become merely an offshoot of the fashion industry. However, design is never wholly based on fashion but more on Lifestyle and designers today need more than ever to understand the more

complex motives that prompt consumer purchase decisions, such as the development of a distinctive self image.

The implications of continual redesigning as a way of stimulating desire, and as a way of creating longing and increasing consumption is of concern in design circles. Some designers bitterly condemn this competitive emphasis on shortening product lifespans, since it is viewed as wasteful, and exploitive. Whatever the rights and wrongs of the matter, for most companies it is now a fact of company life that can not be made to disappear by refusing to play the game.

Consumer-led design, virtually by definition, promotes the production of anything that can be fitted into a market. Some designers claim that this is immoral, that designers should have a "social responsibility" and not be in the practice of creating waste. This opens up an issue over the role of the designer of which there is some confusion today. One could even go as far as to say that design is suffering from an identity crisis.

Consumerism is based on, and fueled by, human desire. One must be given the freedom to desire and subsequently possess in free enterprise where consumers and manufacturers can buy or sell in a competitive environment. To inhibit this freedom would be to destroy one of humanities basic rights. Therefore, the principles of consumerism are not a detriment to society, however,

some of the by-products of consumerism are and one should not confuse the two as many designers and writers do.

Design can not be defined as good or bad but can be defined as successful. If the product sells then the design can be described as successful as the initial reason for designing was to sell the product. The primary role of design is to sell products as consumerism is the fuel of the design industry. However, designers must be aware of their responsibility in the envirnoment of consumerism and he or she must design within the parameters of what they judge to be morally correct.

Manufacturers can come to dominate consumer decisions but at the end of the day the consumer still has the right to choose at his or her discretion. Whether one agrees with the principles of consumerism or not, if the consumerist society was to cease to exist it would be because of the consumer and not the designer or manufacturer. In the unlikely event of this happening, and only then, would the role of the designer change. The designer will not change this situation but one must remember that a designer, is in most cases, a consumer and in this respect it could be argued that the authors of many design books who knock consumerism would be better doing so from a consumer rather than a design angle.

Design is, part of a business process, a profession and a way for many to make a day to day living. Design,

as a business, thrives on consumerism and free enterprise and it is in its present state that Design has developed into a widespread profession offering employment to many creators of form. Design, in its present form, would cease to exist as a widespread profession without consumerism and stimulated markets and one can argue that without the consumerist society to fuel its existence design would be left to a dictatorship of an elite few.

Conversely, the designer cannot see himself or herself merely as a cog in the machine which turns consumer motivation into shape, but a creator of form, creating within the boundaries of a design brief, dictated by both the consumer and the manufacturer. A designer should not become a slave to the consumer and must keep a social responsibility to his or her environment, finding a happy medium between the needs of industry, his or her needs, and the needs of the world.

BIBLIOGRAPHY

1. BAYLEY, Stephen, In Good Shape, London, Design Council, 1979.

2. BENTON, Tim and BENTON, Charlotte, with SHARP, Dennis, (eds.), Form and Funtion, London, Crosby Lockwood staples, 1980.

3. BOWEN, David, "Contradiction in Terms", DESIGN, February 1994, pp. 22-24.

4. CAMBELL, Colin, The Romantic Ethic and Spirit of Modern Consumerism, Oxford, 1987.

5. CARTER, David, "Designer Ethics", CREATIVE REVIEW, March 1984.

6. COLLINS, Michael, Towards Post Modernism Design Since 1851, London, British Museum, 1987.

7. DREYFUSS, Henry, Designing for People, New York, McGraw Hill, 1955.

8. EVAMY, Michael, "Call yourself a designer", DESIGN, March 1994, pp. 14-16.

9. FORTY, Adrian, Objects of Desire, London, Thames and Hudson, 1986.

10. GORB, Peter, (eds.), Design Talks, London, The Design Council, 1988.

11. Henley Centre Report, "Planning for Social Change", DESIGN WEEK, March 1989, p. 5.

12. HESKETT, John, Industrial Design, London, Thames and Hudson, 1980.

13. LAMBERT, Susan, Form Follows Function, London, Victoria and Albert Museum, 1993.

14. LIPPINCOTT, J. Gordon, Design for Business, Chicago, Foster, 1947.

15. LOEWY, Raymond, letter to The Times, 19 November 1945.

16. MAIER, Clive, "Garments from Garbage", DESIGN, October 1993.

17. MEIKLE, Jeffrey, Twentieth Century Limited: Industrial Design in America, Philadelphia, Temple University Press, 1979.

18. National Economic Development Council, "Design for corporate culture" report, London, 1987, p. 75.

19. PALMER, Caroline, and WALTON, Paul, "After the chip", DESIGN, June 1985.

20. PAPANEK, Victor, Design for the Real World, London, Thames and Hudson, 1972; rev. ed. 1984.

21. PATTON, Phil, "Hard Hats", I.D. MAGAZINE, May-June, 1994, pp. 18-22.

22. PLATT, Emma, "Lawnmower man", DESIGN, February 1994, pp. 26-29.

23. SPARKE, Penny, An Introduction to Design and Culture in the Twentieth Century, London, Allen and Unwin, 1986.

24. SUNDAY BUSINESS POST, Out on your own - The essential guide to starting a business, Dublin, 1994.

25. VICKERS, Graham, "All muscles, no fat", DESIGN, April 1994, pp. 26-28.

26. WHITELY, Nigel, Design for society, London, Reikton books Ltd., 1993.

INTERVIEWS

1. Interview with Brendan Farrell, Industrial Designer, Allies, Shankill, Dublin.
   December 5th, 1994.

2. Interview with Tony Gould, Industrial Designer, Allies, Shankill, Dublin.
   November 26th, 1994.

3. Interview with Dennis Madden, Marketing Executive, Trintech, Dublin.
   December 14th, 1994.

4. Interview with Steve McMahon, Marketing Executive, MDS Telephones, Dublin.
   December 16th, 1994.

5. Interview with Jim Leonard, Research and Development Manager, Lowe Alpine, Tullamore.
   November 19th, 1994.