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THE DEVELOPMENT OF CAMERA DESIGN
FROM 1900 TO 1998

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Fourth Year Industrial Design.

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National College of Art and Design.

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INTRODUCTION:

Prior to 1900 cameras were cumbersome and complicated to operate in order to achieve good results. When George Eastman produced the first hand held portable camera, that used film the manufacturer developed, the amateur market was born. The camera then, immediately became very popular. Over the years many companies produced a vast array of increasingly advanced cameras for the snap shot taking public and the enthusiast alike. Technology and styling were the weapons used in the fight for places in the market. Many style changes were made and many technological breakthroughs, such as the introduction of the microchip and digital photography, were made. The aim of this thesis is to examine the camera through changes in style, technology, and design attitudes since the turn of the century to the present day.

THE CREATION OF THE AMATEUR MARKET:

The development of the amateur market began before the introduction of the compact camera. The reason why the early stages of photographic technology was out of reach of the ordinary man was largely due to the fact that until around 1874 wet glass plates were used to record

photographic images. This meant that the photographer needed a darkroom nearby to, first prepare the plates and then to develop them immediately after exposure. In 1874 dry plates were introduced. This meant that photographers were no longer tied to the darkroom and the used plates could be stored over time without the loss of the exposed negative. However the equipment needed was cumbersome and required a certain amount of skill and knowledge to achieve good results. Before the nineteenth century the camera was used predominately by professionals and enthusiasts and remained outside the realm of the common man. The invention of the first transparent and flexible film in a roll by George Eastman in 1889, marked the end of the early photographic era and began the period during which amateur photography became enormously popular. The invention of the roll film removed the technical know-how from photography. The user simply removed the film from the camera after exposure and returned it to the manufacturer for developing and, for a fee, received their prints. Having removed the technical barrier, Eastman (having meanwhile founded "Kodak") then decided to make the apparatus available, at an affordable price, to the common man. It was with the release of the Kodak Brownie (Fig. 1), designed by Eastman and put into production in the USA in 1900, that photography was thrown open to everybody. The

Brownie was enormously successful. The Brownie's aesthetic was purely functional

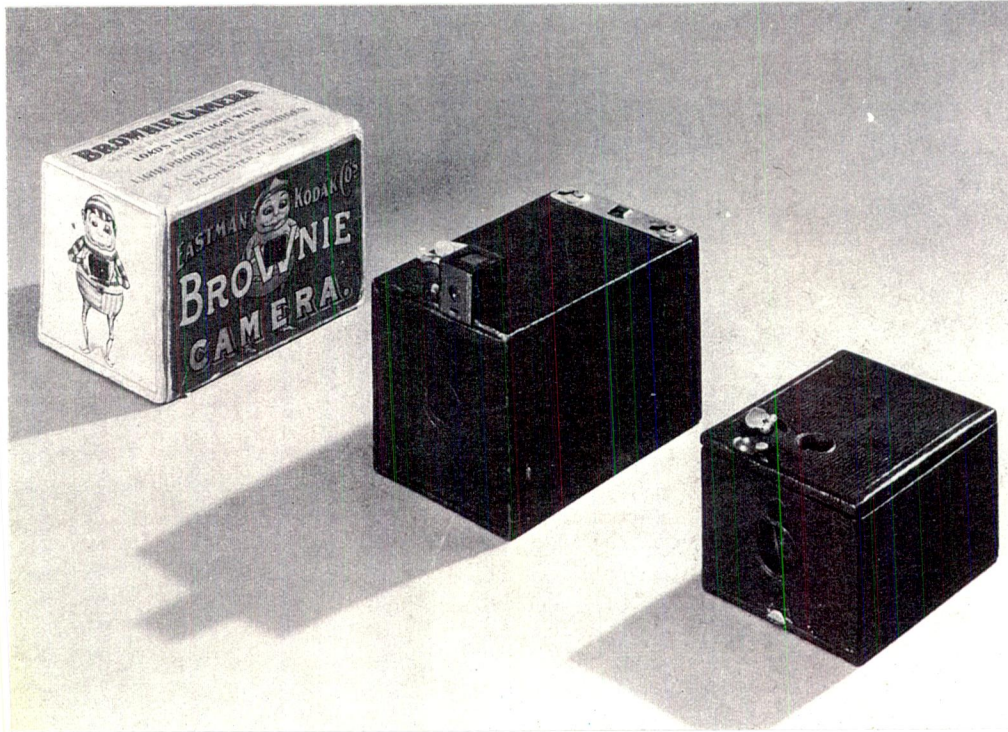


Figure. 1 Kodak Brownie designed in 1900 by George Eastman. The first camera available for the amateur market.

and made no attempt to indulge in any form of styling . It was simply a black box constructed out of wood and cardboard. The controls were like the appearance, extremely basic. They consisted of a button to operate the mechanical shutter, a metal winder for the film, and a hook to hold the casing closed. Ergonomically speaking, it was simplistic in the extreme. Amateur photography flourished after the introduction of roll film. During The Great War outdoor photography was largely banned, but indoor photography grew in popularity. This was fueled by the breaking

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up of families during the war years, as many families were split up when children were sent to live in rural areas as cities were prime targets for bombing raids, also as fathers and sons left to fight . Family members wanted to remember their loved ones in photographs. After the war and the harsh life of the military era, the cozy home life became the focus of the social regrouping process. Eastman used this change in attitude to his advantage by marketing photography as a sure way to maintain happy memories of home life.

The Brownie was the perfect solution, at the time, for Eastman's ideas. The camera was cheap, robust and extremely easy to use. These characteristics allowed Eastman to aim his products at less well off customers, as well as catering for the wealthy with a range of more expensive cameras. Eastman aimed specifically at lower-middle class people, who had less social standing but still had enough money for holidays , and other happy occasions. According to John Taylor, Eastman knew that anyone who invented a product " which the public needs" must present it to them, since " as a rule, the public has to be educated to its own needs". The invention must be thrust down their throats and held there by an imaginative and enthusiastic person whose objective, of course, is to make money. The subjects Eastman wanted to hold down for this sort of treatment were the in-expert amateurs, who wanted nothing to do with the technical side of photography and who could be persuaded to

engage in it as practitioners only if they found it affordable and effortless. (Taylor, 1994, P.29). Eastman portrayed Kodak as a trustable, reliable and economical way to record memories. In their advertisements Kodak used an idealized, middle-class happy family, often on holiday, to endorse their product (Fig. 2).



Fig. 2 Early Kodak advertisements, often used images of the happy family on holiday .

Through the invention of the roll film and the Brownie, and through his marketing strategy of aspiration, trust and identification, Eastman essentially created the amateur photography market. His message was that Kodak photography was a definite, reliable and fool-proof way to freeze a memory in time, in a straightforward and uncomplicated way.

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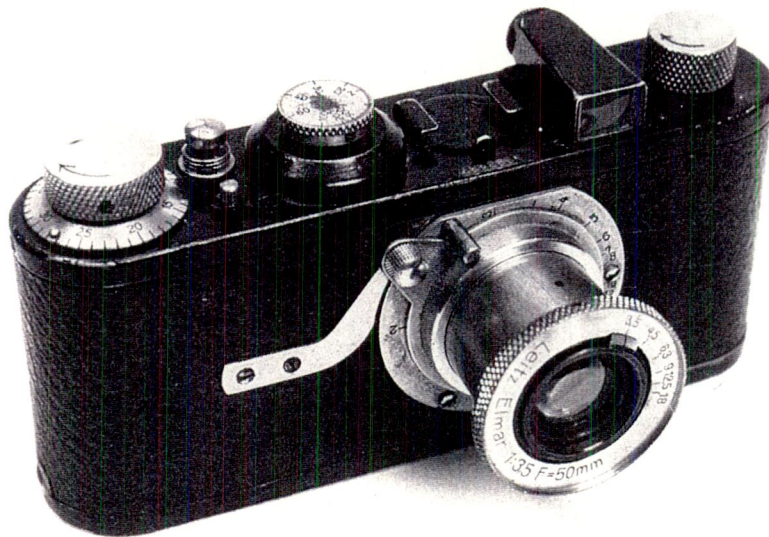


Fig. 3 The Compact Precision Leica 1 produced in 1924 . The Leica established the traditional format used by S.L.R cameras today.

The Leica 1 represented a leap forward using new manufacturing techniques and materials. The Leica 1 was the camera that made the 35mm film so popular and this proved to be a market winning approach. When the first fixed - lens Leica (the name was derived from Leitz camera) was shown in the Leipzig fair of 1925 it was an immediate

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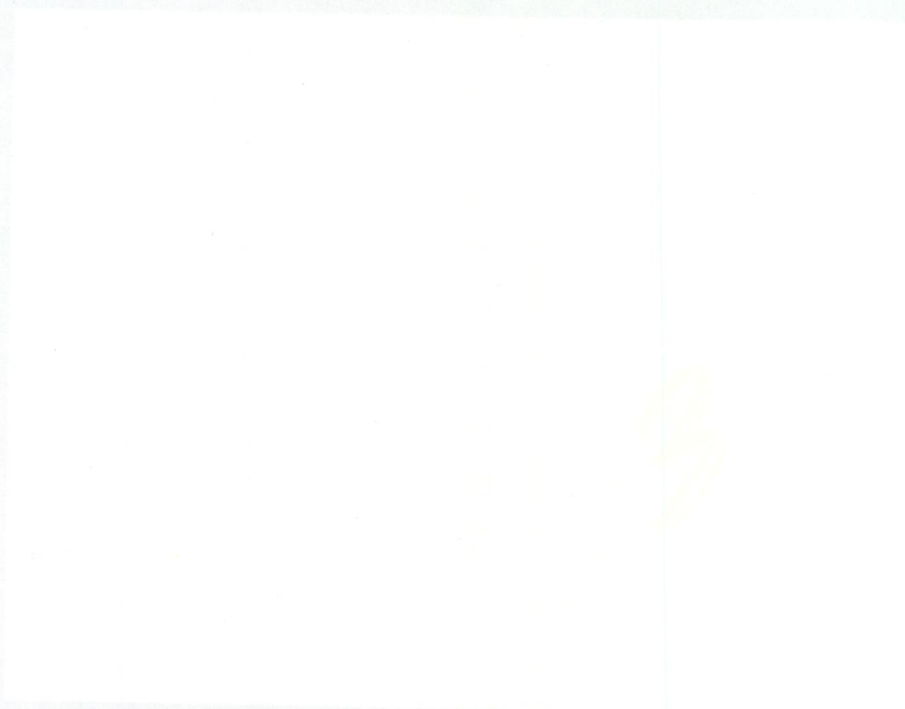


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The Leica I represented a leap forward using new manufacturing techniques and materials. The Leica I was the camera that made the 35mm film so popular and this proved to be a market winning approach. When the first fixed - lens Leica (the name was derived from Leitz camera) was shown in the Leipzig fair of 1925 it was an immediate

success and within a year or two, as its sales reputation gradually grew, it was having a considerable impact on the outlook of designers working for the other camera manufactures (Matanie, 1986, P.12). The principles used in the Leica 1 have not been changed. Even today cameras use the same format with the exception of new technologies. The Leica 1 was a huge leap from the previous box- cameras. In comparison to the Brownie it was much more technologically advanced, with complicated controls such as, close focusing abilities. The new advanced features were much more difficult to use but produced much better results. This was a “serious” camera, suitable for the more enthusiastic amateur and the professional rather than the “ snapshot” taking public. The aesthetic considerations of the Leica were infinitely better than the Brownie and other box-cameras. The Leica’s body was covered with leather and was made of metal with metal internal components and a very high quality glass lens. When released the Leica was an extremely expensive camera, but this was expected because it produced better photographs than any previous camera, either amateur or professional. Aesthetically, the Leica reflected the cool clean efficiency of operation in the lines of its body. It was advanced and it looked advanced. To own a Leica was to own the very latest in technology. The big contenders on the market during the 1930s were essentially designers’ answers to the Leica. The Leica set the level of technology available at the time. When heightened competition

Form

and financial difficulties during the depression spurred manufacturers to add styling to their products , to give them 'added value', the camera began to be a consumer product.

INTRODUCTION OF STYLING TO THE CAMERA

During the 1920s the American economy was experiencing a depression. The public was slow to spend during those hard times and manufactures found themselves having to fight for a place on the market. Companies had to find a way of making their products more appealing than their competitors. This was when the idea of 'eye appeal' came into play. By employing a designer or stylist to give their products 'visual' or 'added' value the manufacturer could heighten a product's chance of being selected by a buyer. In this way styling came about. The origins of styling can clearly be seen in the development of the motor car. At the beginning of the 1920s, Ford's model 'T' was the best selling car, despite criticism of its lack of style. The price of the model 'T' had been reduced to only \$290 by means of efficient production lines and had threatened the profits of other manufacturers. However, in 1926 General Motors introduced a new colourful and stylish Chevrolet and, for the first time, the model 'T' was outsold. General Motors made an early realization that styling could alter value in the eyes of the customer and this allowed

them to compete against Ford. Ford then recognized the importance of these developments in styling and stated “ Design will take more advantage of the power of the machine to go beyond what the hand can do and will give us a whole new art.” The manufacturers’ realization of the need for styling brought about the emergence of the first design consultancies (in the USA). At this time, according to Stephen Bayley, design was not graceful form giving, nor a quest for efficient function, nor indeed laudable social gestures, design was solely the manipulation of an object’s character and appearance in order to stimulate more sales (Bayley, 1986 P.129). During the 1920s and 1930s the first designers and stylists used a celebration of the advances in fast travel, aerodynamics and the technological age in general to gain the ‘streamline’ imagery which dominated styling at the time . Streamlining was applied to a huge range of products , both mobile and static. Figure 4 shows a range of Streamlined products from this period. Essentially any product could be streamlined. John Knudsen Northrop, an airplane designer, did a lot to impress the idea of streamlining on the public’s mind. His flying Wing (Fig. 5) and other similar products were instrumental in exciting the public towards the idea of streamlining. The application of aerodynamics and the construction of the first all metal plane must have seemed extremely modern, along with the revolutionary tail-less design. Such exciting mechanical developments were the reasons

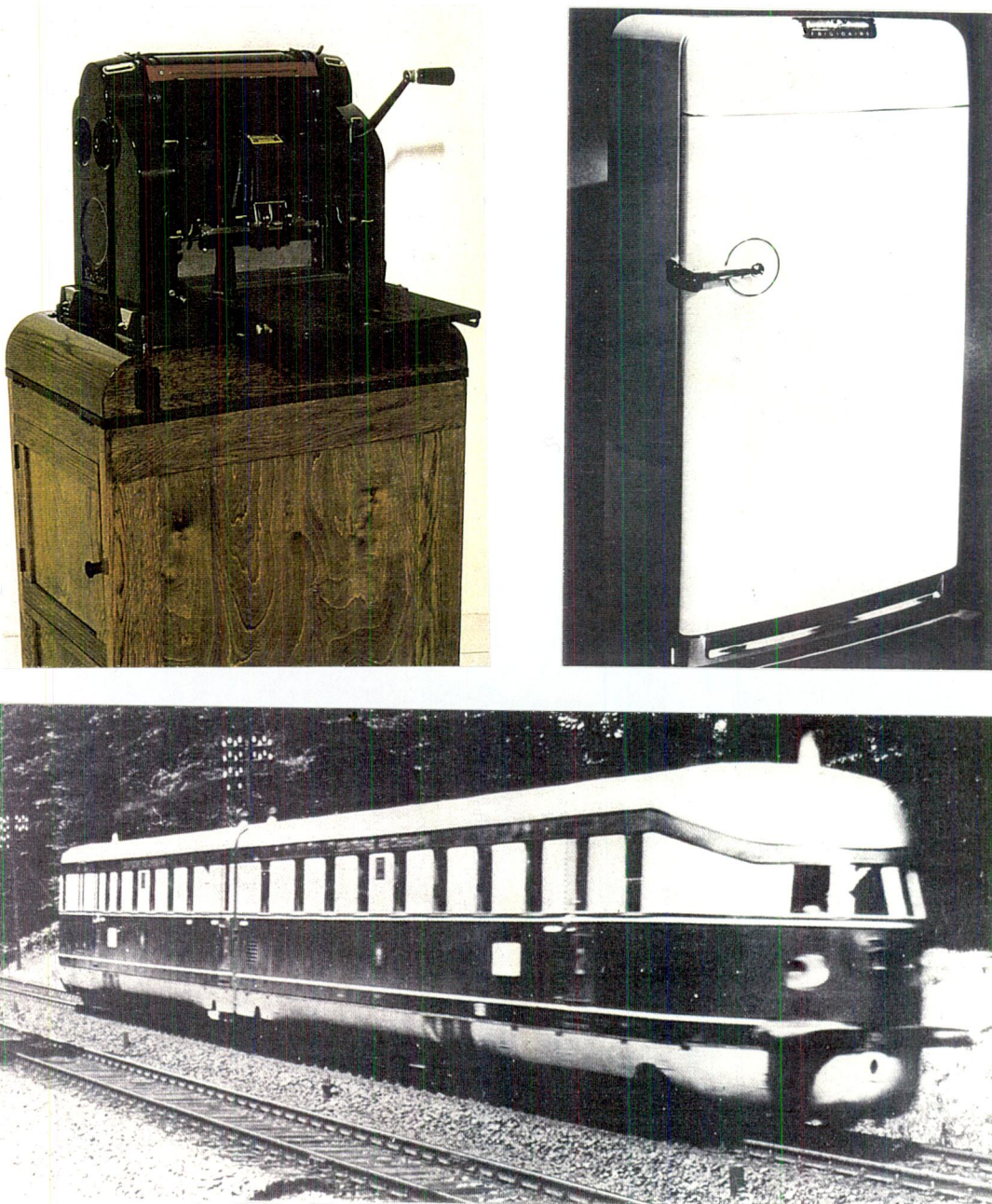


Fig. 4 Some examples of products that have the streamlined style.

why streamlining became so popular. Streamlining in products essentially gave them an air of technological advancement and modernity. The camera was no different than any other product. The same appearance of aerodynamics was applied to give it more fashionable

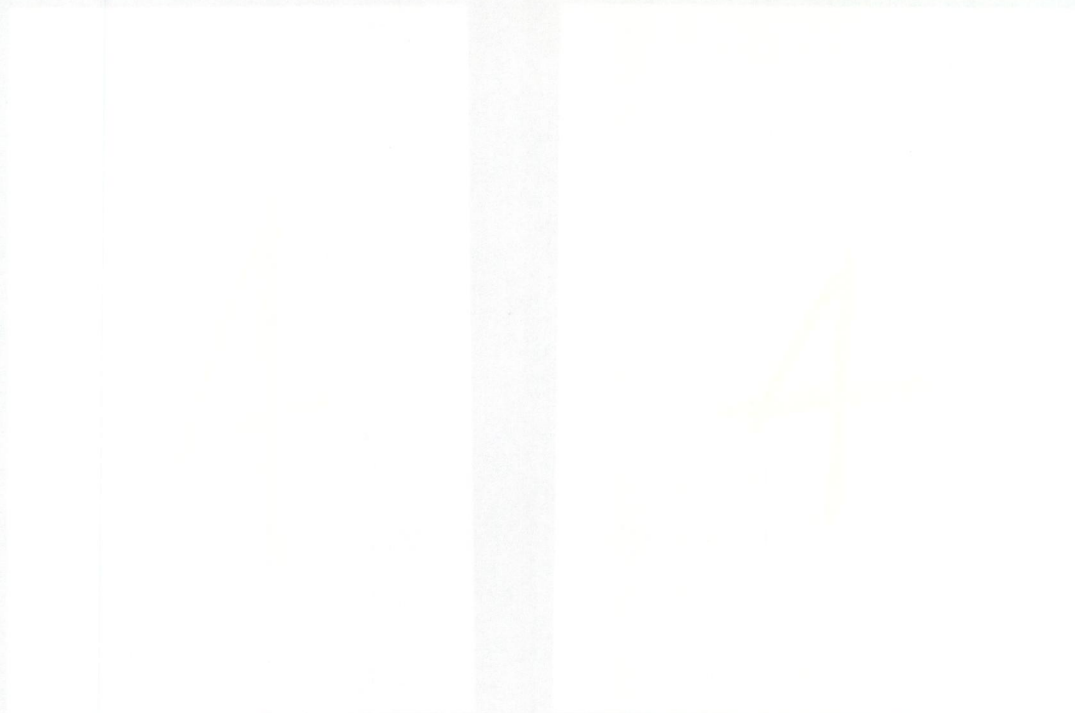


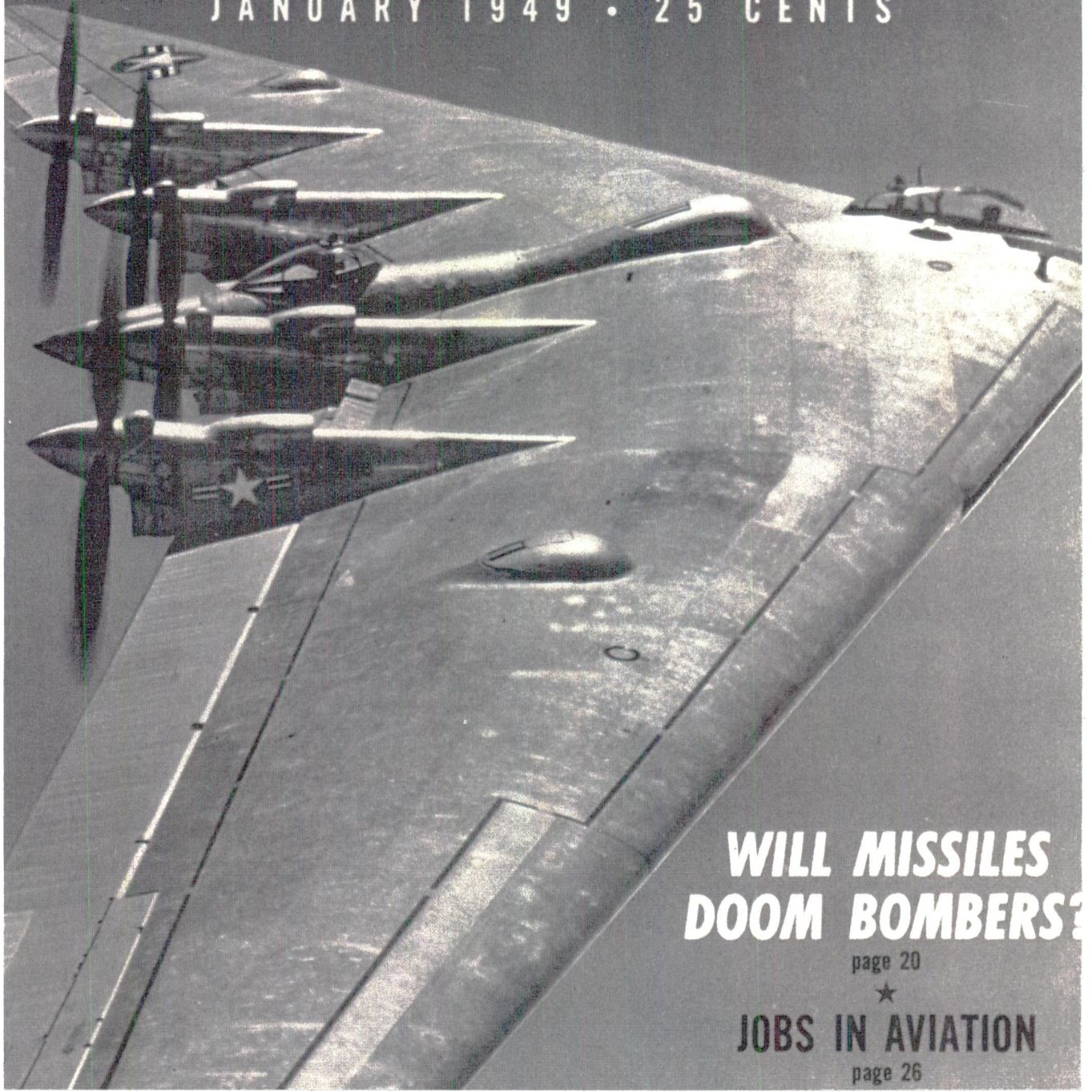
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THE TRUE STORY OF PEARL HARBOR page

FLYING

JANUARY 1949 • 25 CENTS



**WILL MISSILES
DOOM BOMBERS?**

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JOBS IN AVIATION

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Fig. 5 John Northrop's design for the "Flying Wing".

Fig. 2 John Northrop's design for the "Flying Wing."

appeal. Walter Dorwin Teague was one of the first American industrial designers and worked frequently during his career with Kodak, his first major client being George Eastman. In Teague's designs we see advances made in styling, ergonomics and manufacturing techniques. Two examples of Teague's streamlined designs are the Bantam Special (Fig. 6), designed in 1936 and the Baby Brownie (Fig. 7), designed in 1934.

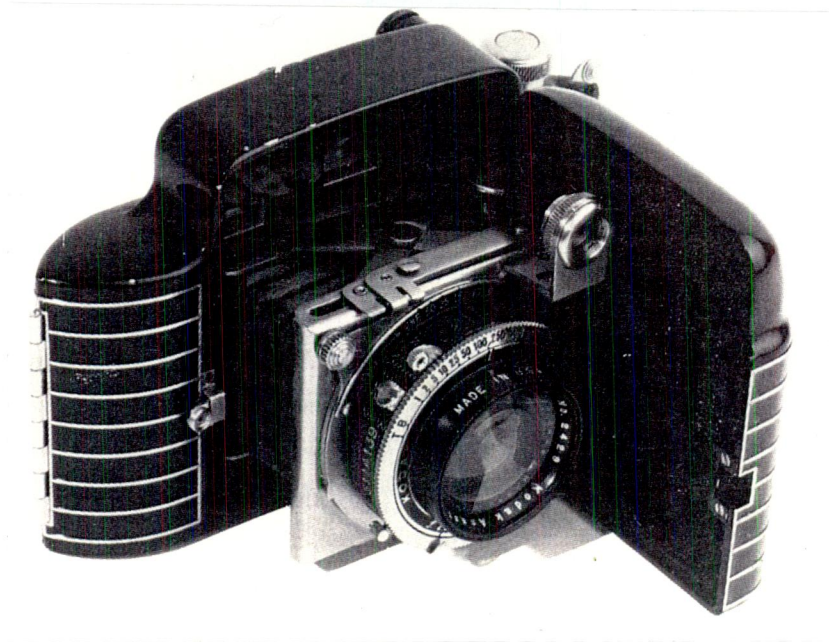


Fig.6 The kodak "Bantam Special" designed in 1936 by Walter Dorwin Teague, is an example of the application of streamlining to the camera.

Both cameras were made from phenolic resin, which is a plastic. Plastic was found to be an ideal material for the manufacture of camera casings.

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It could be easily moulded into fashionable streamlined shapes and provided a tough protective casing. The Bantam Special was a reasonably high quality camera and in a higher price range than the Baby Brownie. It was also one of the many fold out cameras produced by Kodak at the time, as they were in popular demand and cheaper than the Leica style cameras. Its aerodynamic, curvaceous form is typical of the streamlined aesthetic. It is robust and simple in operation. The feature of focusing placed it above the cheaper cameras. The horizontal metal bindings appeared purely decorative but were absolutely necessary to prevent the cracking of the body lacquer. The styling did what it was supposed to do. It conjured up a feeling of modernity. When compared to pre-streamlined versions of the camera this becomes clear. The Bantam Special's styling gave it an unnecessarily bulky form as a smaller, more regular shape would have provided adequate housing for the working. The Baby Brownie was functionally the same as the original Brownie but was smaller and more compact. It moved away from the previous box shape but not completely. It still familiarized itself with the preceeding version by taking a very blocky form. However, the move away was significant. It had adopted the freeflowing curvaceous forms and parallel ribbing found frequently in streamlining and with the sides pushing outward and the lens situated on a protruding face, it seemed in the process of turning into a version of the classic Leica format. It was basically a more up-to-

date version of the black box. It had achieved relative modernity and at the same time made reference to its groundbreaking, familiar predecessor. The technical function was more or less the same in the Baby Brownie as in the Brownie.

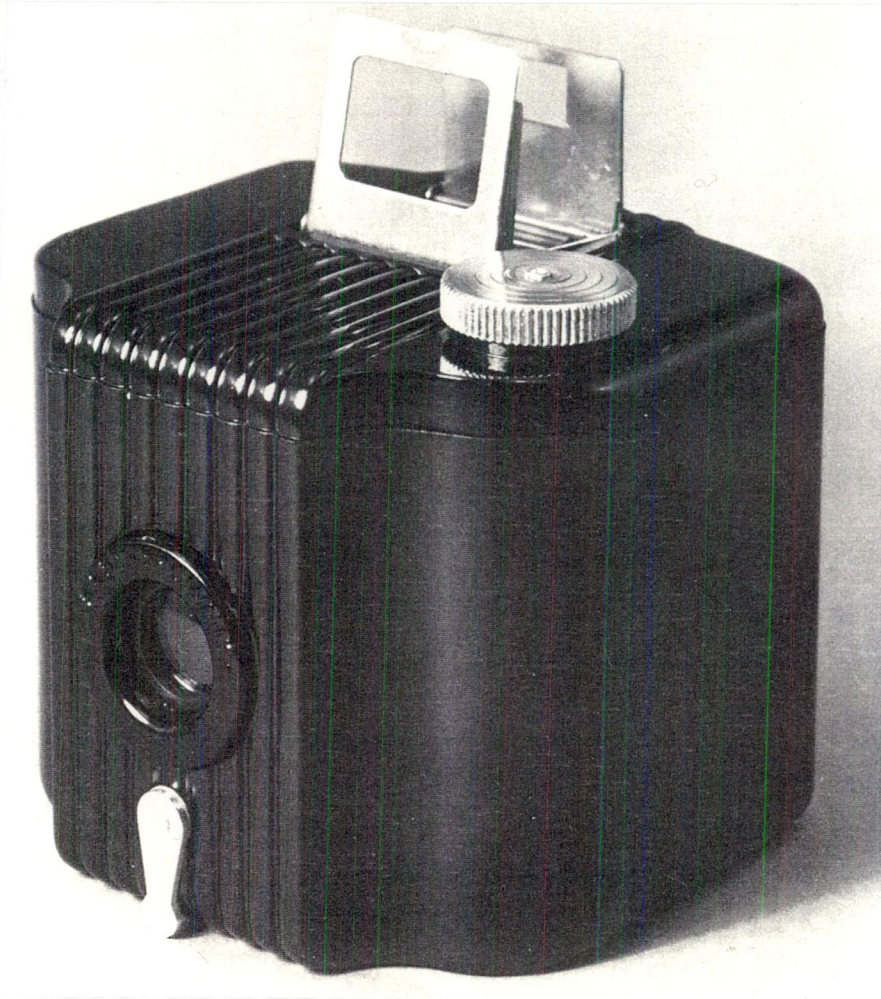


Fig. 7. The kodak "Baby Brownie" designed in 1934 was more stylish than its predecessor.

The controls on the Baby Brownie were more efficient and easier to use, although the operation was uncompromisingly simple it looked more advanced. The use of plastic during this period was very important in the development of the styling of the camera and a wide variety of other

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Fig. 7. The Kodak "Baby Brownie" designed in 1934 was more stylish than its predecessor. The controls on the Baby Brownie were more efficient and easier to use, although the operation was uncompromisingly simple. It looked more advanced. The use of plastic during this period was very important in the development of the styling of the camera and a wide variety of other

products. A lot of forms seen in plastic products of the streamlined era would have been impossible to achieve other than by casting or moulding plastics. Additionally, where expensive manufacturing processes were required to create components, plastic versions could frequently be manufactured more cheaply and efficiently. This helped to greatly reduce manufacturing outlay and enabled the production of higher quality cameras at a lower cost. Dozens of companies also produced cheap plastic cameras for the growing number of amateur photographers. The lower end of the price range represented the vast majority of the camera market and competition between the manufacturers was intense. The application of styling to these basic cameras was important as their functional characteristics were very similar. Other products competing with the Baby Brownie included the Purma Special (Fig. 8) and the Argus Model A (Fig. 9). The Purma Special was designed by Raymond Loewy in 1937 for the English company Purma Cameras Ltd.

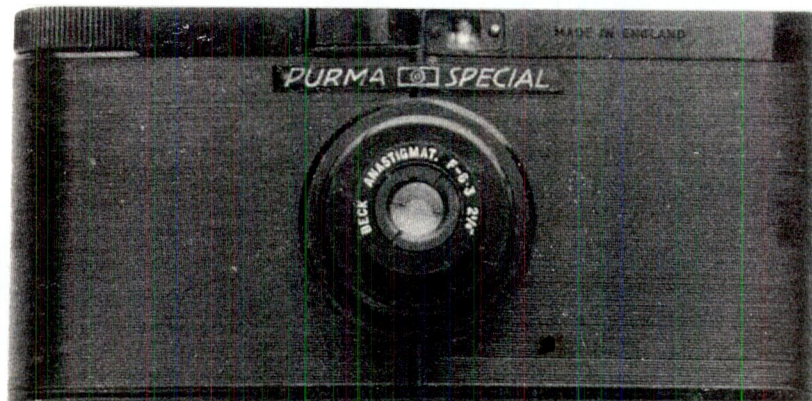


Fig. 8 The “Purma Special” Designed By Raymond Loewy in 1937 for the English market.

It had a sleek, clean finish and mimicked the thin elongated form of the Leica 1. It used an acrylic viewfinder lens and a gravity controlled focal-plane shutter. These were new features for the basic point and shoot cameras, made possible by the cheaper cost of manufacturing due to developments in plastics and production techniques. By taking the form of the Leica 1 and with its smooth surfaces the Purma Special gave an air of gimmick free quality performance, while still portraying the fashionable aesthetic of modernity and aerodynamic appearance. It also moved away from the blocky robust appearance frequently used in cameras in the lower price range. The Argus Model A was introduced in 1936 by the International Research Corporation and was America's first 35mm camera made available to the popular market.

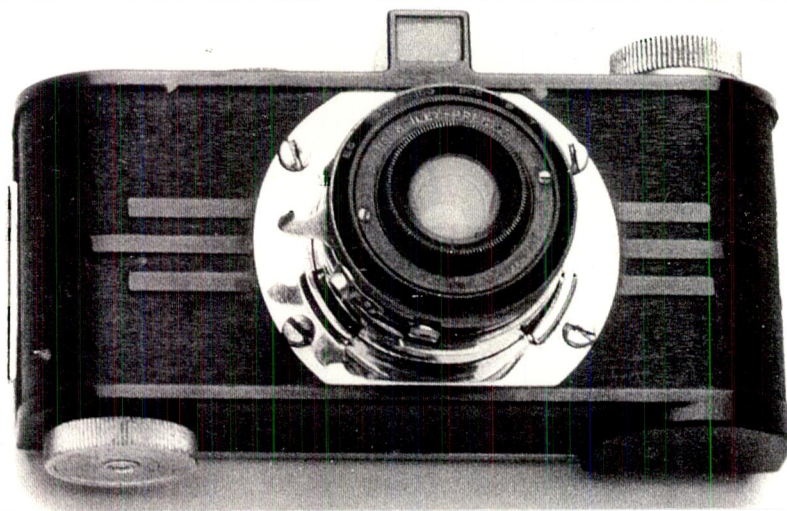


Fig. 9 The “ Argos Model A” Designed by the International Research Corporation in 1936.

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It was the people's Leica, providing high quality at a low price. The body was of moulded plastic and the form was extremely similar to the Leica format. Again the styling gave the appearance of modernity. The Leica's aesthetic reflected technical quality and efficiency. The Argus Model A did the same except that it was cheap and fashionable with horizontal decoration and metal trim. It was compact, elegant and curvaceous and was reasonably priced but above the price of the 'point and shoot' cameras and this was reflected in the styling. The quality was reflected in the materials used to detail this camera and the reserved and elegant form resulted in a camera that was much more desirable as a visible accessory. Priced at \$12.95, it was the first high quality, elegant and affordable compact camera.

While America, and later Europe, were using images of science and modernity to create sales of their products another styling trend was also popular. Apart from the cheaper mass-consumed cameras a need for classic elegance and luxury was supplied by the 'Art Deco' styling and cameras incorporating this type of style were popular during the thirties. The Kodak Six-20 (Fig. 10) was very expensive. It is a good example of this style of camera. When opened the camera's aesthetic reflected high quality operations and technological development. In comparison to the streamlined style this camera had sharp lines and a more rigid form.

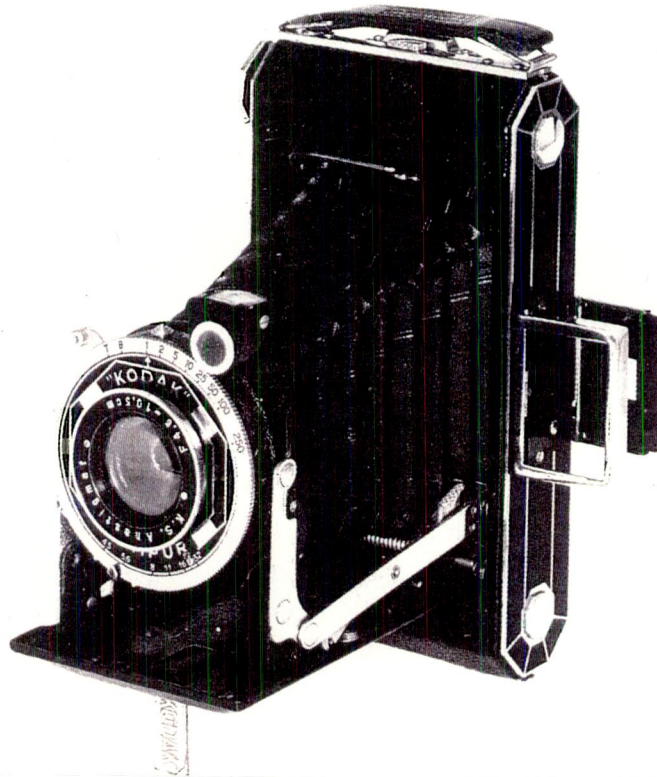


Fig. 10 The kodak "Six-20", designed during the thirties in the Art-Deco style.

This type of style appealed more to the traditionalists or the older generation of the time. It reflected an air of quality and high cost as it was elegantly decorated with fine trim and was constructed from expensive materials. This style of camera would have been more effective at portraying taste and refinement than the popular streamlined versions. Essentially the Six-20's styling was one of reserved exuberance and visible quality. In relation to styling, Nigel Whiteley states, "the first generation of American industrial designers, such as Norman Bel Geddes, Henry Dreyfuss, Walter Dorwin Teague and Raymond Loewy often



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sought to justify their activities in terms of creating a better world by making products more efficient, easier to operate and more 'user friendly'. However styling was ultimately about sales and profit. When asked for his thoughts about aesthetics in product design Loewy outlined his simple but unambiguous view which "consists of a beautiful sales curve shooting upwards". (Whiteley, 1993, P. 129). While the application of a style to a product is primarily to boost sales, the application of fashionable style will eventually ensure that the product will become old-fashioned. This obsolescence of style, and hence stylized products, provided the industrial designer with a constant supply of work, as one type of style becomes outdated another one is demanded.

OBSOLESCENCE VERSUS 'GOOD DESIGN'

The fifties in America was a period of great expansion and prosperity. The growth and affluence of the middle classes created an increase in the market for homes, appliances, cars, leisure equipment etc. The idea of obsolescence was vital to fuel the consumer society which was geared towards the personal acquisition of goods. Stylised objects became status symbols and social standing could be assessed by how often you replaced your car for the latest model. Harley Earl, a car manufacturer, stated in 1955, "our job is to hasten obsolescence. In 1934 the average car

ownership span was five years ; now it is two years. When it is one year we will have reached a perfect score". Manufactures claimed obsolescence was democratic. It was what the public wanted. Their argument was true in a way. The prosperous classes traded in their products which were stylistically obsolete for the newer models and the old ones were then passed down to the poorer consumers. This to some extent, avoided the poorer classes begrudging the upper classes their possessions. It followed that the majority of the population were able to "own and aspire" (Whiteley 1993, P.17). Style obsolescence fueled the American economy and the consumers loved the stylistic gimmicks. It was justified by the belief that anything helping the flow of American made products helped the economy and provided employment and wealth to the population. The aggressive selling of the manufacturers fueled the consumerist society. Credit was made available to everybody who required it. This permitted poorer people to possess the goods they desired before they could pay for them. Effected by social pressures to own the latest models, poorer people found themselves falling into serious debt and often not owning the products they had purchased before replacing them.

In the forty years after World War One, America, in its quest for economic wealth, used more natural resources than the entire population of the world used in the proceeding 4,000 years, One of the primary

causes of this waste is said to be the obsolescence in the car industry during that period.

In contrast to consumerist obsolescence there was a revival of modernist ideals across Europe. Europe, whose resources had been tapped for years before the American consumerist society began, was slow to indulge in the exuberance of obsolescence. The modernist ideals were characterized by the use of clean line and purist form and the rejection of unnecessary styling and ornamentation. The Periflex 1 (Fig. 11) camera, which was designed in England during the fifties, is a good example of a camera designed under the influence of the Modernist ideal.

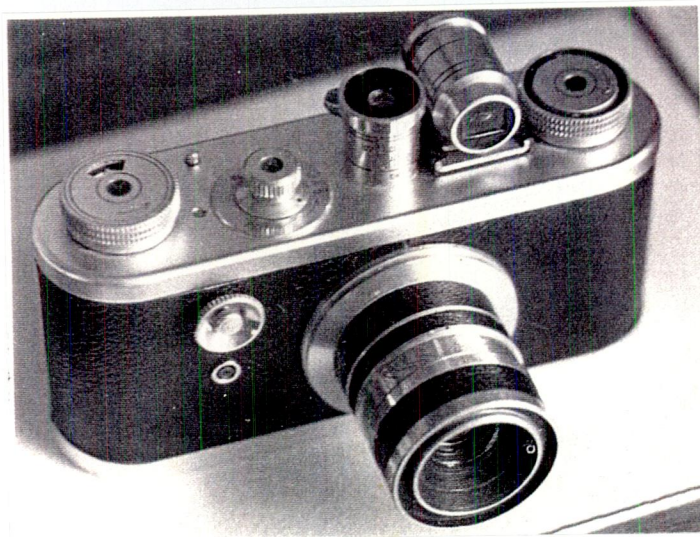


Fig. 11 The “Periflex” designed in England During the 1950s , encompassed modernist purity of form.

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The Periflex 1 took the classic form of the Leica, but reduced the aesthetic features to bare simplicity. It was clean-lined in the true modernist way and was of very high quality when released and this was reflected in its elegant appearance. The Kodak 35 (Fig. 12) was designed and produced in America in 1951 and had similar capabilities to, and was in the same price range as, the Periflex 1.



Fig. 12 The Kodak 35 designed and produced in 1951 in America.

Comparison of these two cameras show clearly the differences of ideals. The immediate differences was in the controls. The Kodak seemed to be littered with them around the lens, and looked extremely complex while Periflex was exactly the opposite, looking simpler than it actually was. At this time it had become a status symbol to own articles of high technology and the Kodak 35's over exaggerated controls would have appealed to people wishing to display status by the level of technology at

their disposal. The Periflex 1 rejected this unnecessary gimmickry and took the purity of form option. During the fifties the notion of “good design” emerged in the USA. Good design consisted of an aesthetic that was closely related to the modernist movement, and was basically design void of unnecessary styling and ornamentation. Edgar Kaufmann encouraged the initiative of “good design” and held exhibitions in the Museum of Modern Art in New York. He also introduced good design awards. Good design became a status symbol. After the introduction of commercial television in 1955 the flow of commercialism was impossible to stop. The consumerist ideals were fueled by mass advertising. As society rapidly became more media-based, any attempt to reject consumerist ideals and the transient styling and obsolescence that went with it, were futile. The remorseless advertising on a massive scale of every new trend and style militated against the notion of “good design” which rejected transient styling.

DESIGN FOR LIFESTYLE

With technology and manufacturing processes the “electronic age”, which began in earnest in the 1960s, brought with it heightened competition. Manufacturers were no longer restricted to mechanical operations and higher quality cameras with higher quality functions could

be produced far cheaper than ever before. With the basic camera being produced for next to nothing, competition was fierce. Due to this competition, marketing strategies began to play a large part in the process of design. It was during the 1950s that marketing took its first tentative steps but the early methods used proved ineffective and misleading. For example, the American motorcar industry tended to ask for their customers' preferences from a range of pre-determined options which usually resulted in small refinements of existing designs. It was Theodore Levitt who, in 1960, first opened the eyes of manufacturers with his thesis published in the Harvard Business Review, Levitt stated;

ref ?

“ A marketing orientated company tries to create value-satisfying goods and services that consumers will want to buy. What it offers for sale includes, not only the generic product or service, but also how it is made available to the customer, in what form, when, under what conditions and at what terms of trade. Most important, what it offers for sale is determined, not by the seller but by the buyer. The seller takes his cues from the buyer and not vice versa.”

Through research the manufacturer hopes to single out and target a viable market. Using styling and product features he hopes to attract the particular type of person he has targeted. The Zeiss Ikonette (Fig. 13)



Fig. 14 The “Zeis Ikonette” designed in 1959 was marketed at women.

designed and produced in 1959, was marketed towards the female snapshot taker. It was an example of how a company targets a consumer group and design towards its needs. The styling was soft and curvaceous, its colour and form more decorative than other models of the time and essentially it was more feminine. This camera was designed to be a visible accessory as well as a tool for recording images. It encouraged the women not to put it away immediately after use but to display its attractiveness as a statement of her own taste.

Marketing revolved mainly around design for lifestyle. Marketing was directed at a certain type of culture and way of living. The ‘Sony Waterproof Walkman’ was an excellent example of design for lifestyle.



Fig. 14 The "Xenon Electronic" designed in 1959 was marketed at women.

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The number of people who needed a waterproof Walkman was extremely small and probably would not have warranted production. However, Sony were not only targeting the people who actually needed a waterproof Walkman they were targeting people who wanted to portray themselves as having a young, active and outdoor lifestyle through the possession of a waterproof Walkman even if they used it only in the shower! By portraying the Walkman in this manner Sony essentially predicted what their target market would like before the market knew themselves. This strategy took the design process one step further. It eventually meant that a company not only anticipated consumer needs but actually created them. The design of the camera as a lifestyle accessory can be shown by means of the colourful Ferrania 3m (Fig. 14).



Fig. 14 The "Ferrania 3M" designed in 1970 reflected the young, trendy lifestyle.

It was produced in Italy in 1970 and was an expression of fun and youth. It targeted the outgoing young lifestyle and reflected these ideals through its vibrant colours. Those who would have bought this camera wished to express their own vitality and trendiness. Whether or not the purchasers were fun loving, exciting and vibrant did not matter as the camera symbolized a lifestyle that they aspired towards.

The application of a certain type of styling to reflect a lifestyle was a major move in the design world. The camera was effected in the same way as other products, such as the Walkman and the television. The Canon Ixus (Fig. 15) is an excellent example of modern successful design for lifestyle in cameras.



Fig. 15 The Canon "Ixus" produced in 1997 is a symbol of the affluent, fashionable lifestyle.

It was first produced in 1997 and remains the best selling compact in the world. It is extremely advanced and has a wide range of high quality features, including advance photo system and zoom lens. Miniaturization of technology has enabled this camera to be the smallest compact available. The Ixus is styled perfectly with a casing of plastic in a brush steel finish, a finish which is popular in futuristic technology, at present. It is classy and elegant and it is because its styling reflects class and affluence at the same time as modernity that it is so popular. In the advertisement at Fig. 16 we see an elegant model actually wearing the camera around her neck as a piece of jewelry.



Fig. 16 An Ixus Advertisement showing the camera as a fashion accessory.

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The advertisement is titled 'Between Takes' and encourages the consumer to regard the Ixus as more than a camera and not to hide it away when not in use. Canon has successfully targeted the young , well-off market . The Ixus is a statement of a trendy, tasteful and affluent lifestyle. It is sold as a visible accessory as well as a highly advanced camera, which shows that the compact camera is not entirely dependent on technological features as a selling point. While miniaturization and capabilities are part of its appeal and are desirable pursuits in compact design, it is predominately its elegant style that places it at the top of the market.

THE ELECTRONIC ERA

The future of the camera appears to be one of high quality with the ease of use of the point and shoot type. With the miniaturization of technology and microchip automation the range of features in cameras are surprising, as seen in the Ixus. Even disposables have automatic flash and panoramic view capabilities. Due to these new technologies a vast range of advanced features can be applied to the compact. George Eastman's ideal, of photography with no effort, is still valid though increasingly complicated features are being applied to cameras that can be operated

completely automatically with the touch of a button. The compact camera has taken firm hold of the market and is the main reason why the SLR camera (Single Lens Reflex) has declined in popularity over the past ten years. "Sales of SLRs have been declining steadily for the past ten years, despite the introduction of automatic focus five years ago, which had been expected to reverse the trend but didn't. This was primarily due to the immense success of the versatile, fully automatic 35mm compact camera which, with the feasibility of modern colour print film, delivers high quality results with a minimal failure rate in even the least expert hands." (Dickie, 1990, P.30). The disposable has removed the need for a point and shoot camera and in the electronic era a camera must have more functions than the pre- microchip versions. The desire for technological superiority could now be catered for by a compact.

Ease of use combined with advanced features in a compact form are a big selling point. At present, the big feature of auto-focus, which it was hoped would revive the fortunes of the SLR, is available on all quality compacts. Portability is an additional issue. Many of the compacts are equipped with cases that slide to cover the lens and view finder for safe mobility. Many of the compacts of this kind adopted the 'black box' aesthetic such as VCRs, televisions and mobile phones, in order to convey the air of advanced technology and reserved sophistication. The ease of use is reflected in the forms taken by most of these cameras,

which are curvaceous and ergonomic in appearance. A typical mid-range model is the Olympus u[mju:]1 (Fig. 17). It has a sliding case, black colour and ergonomic, curvaceous form. This camera, and many similar cameras, were designed to be discreet and unobtrusive. Although it can fit easily into one's pocket, it is designed to also appear compact and discreet when in view.

The LT-1 camera (Fig. 18), also from Olympus and in the same range as the U[MJU:]1 takes a different angle in styling and adopts an image of an older camera using a leather-tech body and a classical aesthetic.



Fig. 17 The Olympus u[mju:]1 a 1997 mid-range compact.



Fig. 18 The Olympus "LT-1" Produced in 1997 adopts a somewhat traditional style.

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Fig. 17 The Olympus u[m]n-1 a 1997 mid-range compact.



Fig. 18 The Olympus LT-1, produced in 1997 adopts a somewhat traditional style.

The functions of these two cameras are practically the same but the LT-1 appeals to a different market. It takes the modern format and curvaceous shape but is a throwback to the classic era in an attempt to reflect a more reserved and traditional style.

The greatest stylistic changes probably occurred at the same time as the biggest technological developments. The introduction of the digital camera to the market (and its success) spelt a revolution in phototechnology. The process is completely different to the traditional method. When the user takes a photograph with his digital camera the image is saved on the camera's internal memory or on memory cards. The image can then be loaded into a home computer either by means of a normal word processing package or a special image manipulation package which allows picture editing (this facility usually comes as standard with the camera). With this technology, film and developing is no longer required. Until recently the picture quality of digital cameras has not been of adequate standard to challenge conventional photography but now, pictures of extremely high resolution are possible. Additionally, special printers, which remove the need for a PC, are available.

Many digital cameras have adopted a new style by forsaking the common black box aesthetic and acquiring an ultra advanced image. One such camera is the Olympus 'Comedia' (Fig. 19).

The most obvious feature of this camera is that it has adopted the form of a normal compact camera, in order to gain the public's trust of the new technology. The Comedia has adopted the shape and some of the most common features of other compacts, such as the curvaceous form and sliding protective case.



Fig. 19 The Olympus "Comedia" a 1997 top of the range digital compact.

It is common for new technologies to unnecessarily adopt the form and aesthetics of established traditional products. The Sony Mavica (Fig. 20) is one such product. This camera was produced in 1981 and used video tape rather than film to record images and the photographs, as a result, could be viewed on an ordinary television.

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Fig. 20 The Sony “Mavica” designed in 1981 uses videotape to stores images.

The Mavica took the form of the traditional SLR to gain the trust of the public. Apart from adopting a recognized form and mimicking familiar features the Comedia took on an almost anti-plastic aesthetic showing modernity and reflecting its technical advancement through its metallic appearance. It furthermore spurned the usual black finish for a brushed steel finish, that is a plastic given a brushed steel finish. This aesthetic has been used in other non-digital compacts to reflect modernity and advancement, using the association between the aesthetic and the latest technology. Examples of this are the Ixus and the Canon ‘Prima Super 28’ (Fig. 21).



Fig. 21 The Canon “Prima Super 28” a 1997 high quality multifunctional compact.

The Prima is in the same vein as the Ixus, but borrows some styling features. The Prima has much cleaner surfaces to it and looks more reserved and less complicated although equipped with more features and more advanced technology, which probably accounts for its larger size. A feature of this camera, and indeed the majority of compact cameras, is the tendency to secrete the technology inside. It is known that the Prima is an advanced camera with a lot of complicated features but the bare minimum of exterior controls hide this fact.

Digital technology completely altered the course of photography, primarily by eradicating the need for developing techniques. When digital technology eventually becomes cheaper and becomes accessible to a greater number and range of people, it should completely dominate the photographic market. As with classic cars and other products there are classic camera enthusiasts. It is unlikely that these enthusiasts can be persuaded to forego using their old mechanical cameras with film unless, of course, the digital camera results in the production of film being made redundant.

QUALITY AND CONVENIENCE:

Over the years the two main concerns in camera design have been to improve the quality of the pictures taken and to make it as easy as possible to take them. The technological developments in phototechnology were usually applied to the cameras aimed at the professional and keen amateur market. The use of technology that offered improvements in photography resulted in cameras becoming very complicated by the use of a wide range of controls and accessories.

Varying lenses and other equipment were required to perform different tasks under different circumstances, thereby requiring an enormous amount of different attachments. These attachments, by means of the science of ergonomics, were made as easy to use as possible as was the cameras themselves. However, the problem of accessorising then arose with regard to the number of accessories, which all needed individual operation, and the range of adjustments needed to properly use the equipment to achieve the desired level of picture quality in certain situations. The introduction of the microchip into camera technology removed the necessity for many of these attachments and accessories.

Now “at the serious amateur end of the spectrum the single lens reflex is still the most favoured camera. But clusters of lenses, light meters and camera bags full of gadgets are out. All cameras are now fully automatic

and zoom lenses more of an original specification.”(Osborne, 1991, P.12). However, some level of manual override is still used. A good example of a camera designed using this technology is the Olympus IS 1000 (Fig. 22).



Fig. 22 The Olympus “IS 1000” produced in 1991. This camera is extremely advanced and is almost completely automated.

This camera is equipped with capabilities that permit the analysis of all the information about the subject and the lighting involved and automatically adjusts itself according to parameters laid down by professional photographers. Additionally, this camera uses “creative expansion cards”, of which there are fourteen, and are programmed for a

and zoom lenses more of an original specification." (Osborne, 1991, p. 12). However, some level of manual override is still used. A good example of a camera designed using this technology is the Olympus

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This camera is equipped with capabilities that permit the analysis of all the information about the subject and the lighting involved and automatically adjusts itself according to parameters laid down by professional photographers. Additionally, this camera uses "creative expansion cards", of which there are fourteen, and are programmed for a

certain application or set of conditions. The 'artificial brain' in the Olympus IS 1000 is activated by a combination of touch sensors in the camera's grip and detectors that can tell when the user's eye is near the viewfinder. So to a large extent this camera actually thinks for itself.

Electronics has allowed the production of a wide range of advanced features permitting extremely high quality results at the push of a button. This is important as the snapshot section is by far the largest market in the camera world. The main selling feature of the point and shoot camera is its convenience and ease of use. Eastman pushed the simplicity of the box camera as a major feature being well aware that it was important for photography to be effortless in order to appeal to the man in the street. However, compared to the SLR the point and shoot, before electronics, were of poor quality, as were the higher priced and higher quality models.

Convenience in camera design is closely associated with miniaturization. The idea is to offer a wide range of features in as small a package as possible, that can be slipped easily into a pocket or carried without any problem or inconvenience. Miniaturization of technology has permitted the compact to automatically perform the actions that were previously controlled manually on SLRs. The popularity of the compact is due to the convenience of a small camera which is capable of producing SLR quality photographs. The last major obstacle to convenience in photography is the requirement to process film. Attempts

have been made to remove chemistry from the photographic process by means of the previously referred to Sony 'Mavica', digital, and the 'Polaroid'. The Polaroid process was first developed in 1947 and used wet film techniques to produce a unique print, seconds after exposure . The Polaroid was very popular when first released but the quality of the prints was questionable.

THE DISPOSABLE CAMERA

Another major step in camera design was the invention of the disposable camera. Technology had advanced to the stage where a point and shoot camera could be produced and sold at a price not much greater than the cost of the film contained inside. The disposable camera is ultra convenient. The user simply purchases one, at small cost, when the need arises and does not even have to worry about inserting or removing the film. When the film is used the camera itself is returned for developing. It epitomises George Eastman's belief that people would be encouraged to take photographs as long as it was relatively effortless to do so. Like all the other 'snapshot' cameras it is targeted firmly at the unknowledgeable amateur to record happy memories. The need to own a re-usable snapshot camera was theoretically removed as a disposable camera of adequate quality could be bought when needed. The Kodak Fun Cameras (Fig. 23)

are targeted heavily at the holiday market, as holiday times are main occasions when snapshot photographers come into action. In support of this the packaging graphics contain vacation imagery such as a family in a swimming pool, the New York skyline etc. The cameras themselves are very basic with most of the styling taking the form of colourful graphics and lettering.



Fig. 23 The Kodak “Fun Cameras” 1991. Disposables aimed at the travel market.

The name, packaging and graphics are all vibrant and happy inviting you to make the Kodak Fun Camera part of your carefree holiday. The whole

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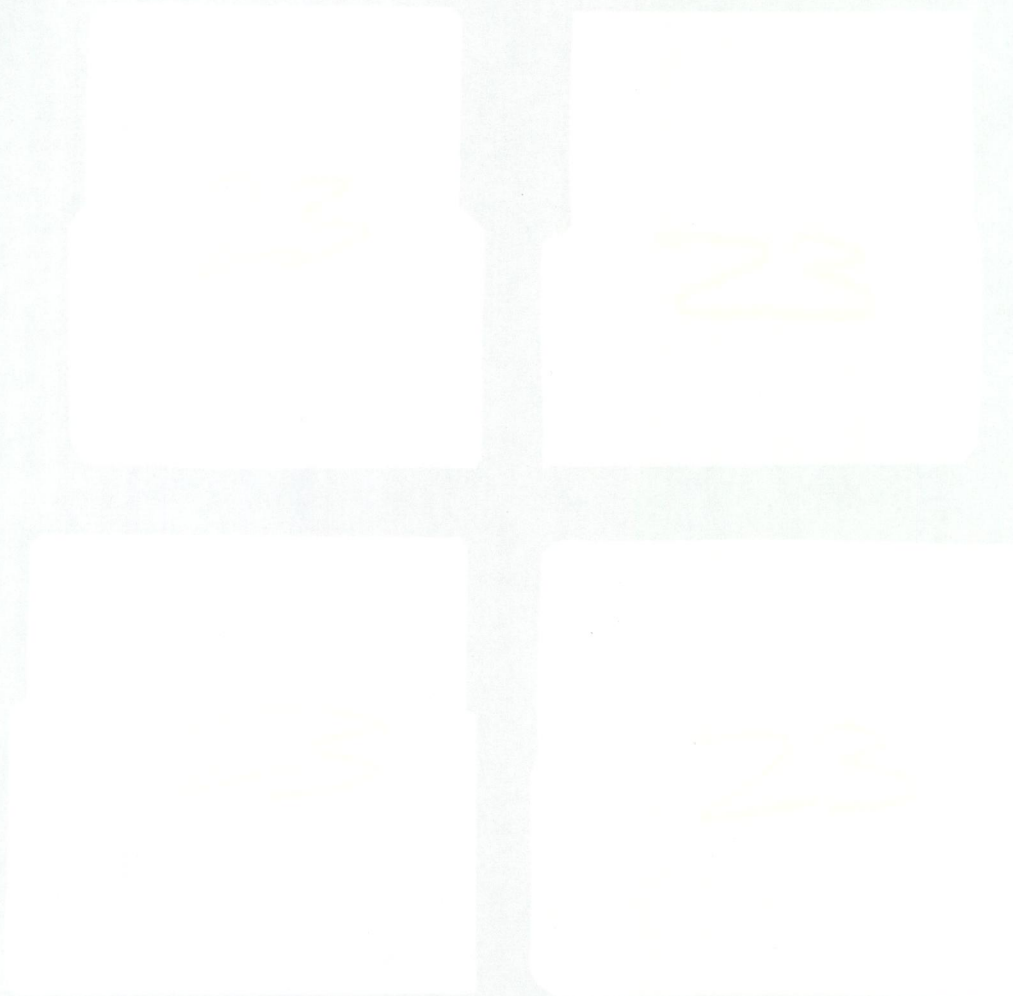


Fig. 23 The Kodak "Fun Camera" 1991. Disposables aimed at the travel market.

The name, packaging and graphics are all vibrant and happy, inviting you to make the Kodak Fun Camera part of your carefree holiday. The whole

presentation revolves around remembering fun times. The Fun Camera range offers a surprising array of functions such as waterproofing, flash and panoramic view.

The Kodak Fun Cameras have also been marketed towards a further group of consumers as a spontaneous purchase. The colourful graphics were replaced by a 'Heineken' logo and the cameras were sold from vending machines in night clubs and public houses or given away as promotional gimmicks. The purpose was still to record happy moments but now it was happy moments when socialising that were to be recorded. The Heineken logo was applied to associate with the pub culture. This illustrates the same product being marketed towards a different lifestyle, that is, the pub and club patrons as opposed to holidaymakers. The Kodak Fun Cameras are, in one way, a promising carefree convenience and in the other a spontaneous purchase to record a fleeting moment.

The latest offerings of disposable cameras show significant design changes. There are two brands leading the market, Kodak with the 'Fun Gold' (Fig. 24) and Fuji with the 'Quick Snap Super Slim Flash' (Fig. 25). Although still called the 'Fun' camera the Kodak has lost its fun packaging and graphics, and appears to be taking itself much more seriously, possibly due to doubts regarding the picture quality in earlier disposable cameras. The emphasis seems to have changed to giving the impression of quality. The camera itself now has a matt black finish and

looks more like a re-usable camera than its earlier counterpart. The form is quirky and exciting with flowing wavy lines and bold raised unsymmetrical surfaces which give the impression that a lot more time and consideration went into the production of this camera.



Fig. 24 The kodak "Fun Gold" a 1997 disposable.

The original range of Fun cameras is still available and have maintained the exact same form though the graphics are slightly different but encompass the same features. The Fun Gold camera is more curvaceous and ergonomically designed with thumb and finger grips and raised ridges to indicate where the buttons are when it is held at eye level. It was designed as a more serious 'higher quality' alternative to the other Fun

cameras. The Fun Gold is not aimed at a specific target such as the holiday or pub/ party scene but merely offers a disposable that looks serious and of high quality to attract those who are not convinced by bright packaging. The Fuji version is smaller and thinner than the Kodak. They both have similar features and operation and cost the same. The Fuji's aesthetic is quite different to the Kodak, as it is less exciting with more curtailed curves and form.



Fig. 25 The Fuji "Quick Snap super Slim Flash"

Like the Kodak, the Fuji has chosen to take itself seriously but looks slightly more restrained. It is presented completely concealed with just a small representation of itself on the wrapper so the purchaser has difficulty in seeing what it looks like before purchasing. Considerable

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Fig. 25 The Fun "Quick Snap super Slim Flash"

Like the Kodak, the Fun has chosen to take itself seriously but looks slightly more restrained. It is presented completely concealed with just a small representation of itself on the wrapper so the purchaser has difficulty in seeing what it looks like before purchasing. Considerable

effort has been expended to ensure that the picture quality of this camera is good and Liz Walker, editor of 'Photo Technique' magazine states, "It's small enough to slip into your pocket, it's equipped with a powerful flash and takes fantastic pictures. A top quality camera that makes anyone look good". (Walker, 1998, P.86) The Fuji is aimed at the same market as the Kodak Fun Gold.

The disposable camera has become incidental to the customer as he is paying for more convenient photographs. However, styling is still applied to target different markets and to encourage sales. By making it disposable the camera has become a transient expression of lifestyle, or even a temporary expression of lifestyle, or even a temporary product expressing a temporary experience, such as the family on holiday or social activity.

The disposable camera could be regarded as being (as far as the camera is concerned) the final word in consumer-led design. The phrase 'consumer based design' implies that the designer is responding to the consumers' needs directly. The reality is that designers are predicting consumers' needs and design towards them. An item is produced that caters for these wants and is presented to consumers before they are aware that they require it. Accordingly, marketing-led design is a more accurate way to describe consumer-led design. The result of marketing-led design is that if an item can be successfully targeted at a particular

market, it will be produced. The disposable camera represents a product that is bought on impulse for convenience and is thrown away when used. Styling , targeting of lifestyle, marketing and advertising are sophisticated means to persuade people to buy products and to avoid the moral issues involved. The main criticism levied at marketing-led design is concerned with ecological issues. The disposability of the camera is obviously the main moral concern in this case. Since the creation of the concept of obsolescence and the eventual worldwide spread of mass consumption, fueled and indeed made possible by obsolescence, huge amounts of resources have been used in providing the consumers of the world with new products and trends. As each country strives after economic wealth the idea of obsolescence becomes vital. There was no call for disposable cameras before their introduction and the idea makes little ecological sense. Nevertheless, they were presented on the market, targeted at certain situations and types of people in such a manner as to ensure their purchase by people, who previously had no need for a disposable camera.

Despite the fact that Kodak reassures the customer that it is ecologically friendly by printing recycling symbols, no less than three times, on the disposable Fun Gold 's packaging, the ecological issue is still in question. The Fun Gold camera consists of an outer cardboard container, an interior cardboard structure (sleeve) to hold the camera in place and a plastic bag in which the camera is wrapped. The extent of this

packaging seems excessive and the cardboard elements are unlikely to be re-used or recycled. The Fuji disposable is more eco-friendly as it is presented in plastic wrapping only. Inside the plastic shells of both cameras are fully functional cameras, complete with circuit boards, power supply shutters and other smaller components. It seems shameful to dispose of such fine pieces of engineering. The plastic casing can be ground and remoulded but according to Julius Posener, writing for Domus magazine, the processes needed to remove and dismantle the interiors are not economically viable and essentially this is not done as much as is theoretically possible. (Posener, 1994, P.78)

As people's lifestyles were reflected in the products they bought, those who were ecologically concerned wanted to bring this concern into practice by purchasing non-wasteful products. Though big business is slow in bringing about change, aided as it is by the media to maintain the status quo, one company however recognised the ecological flaws in the disposable camera and produced an alternative, which was marketed as "guilt free convenience". The 'Outdoor Mini' (Fig. 26),



Fig. 26 The "Outdoor Mini" designed as a guilt free answer to the ecological questions raised by the disposable.

designed by the Nature Company in the USA in 1993, is available and selling at £3, less than half the price of a disposable camera. The Outdoor Mini when not in use folds up to become a keyring. To use it you insert the film, which actually forms the main body of the camera. The lens cover flips up to make the viewfinder and the camera is then ready for use. This camera involves minimal materials and has abandoned all effort at style application as a statement against stylistic trends creating obsolescence and effecting more wasteful production.

TECHNOLOGY AND THE CAMERA

Technology seems to be the main force governing the development of the camera and new developments in camera design seem to follow a certain course. It begins with the introduction of new technology. This could mean the invention of a new product or the introduction of a type of technology to a particular market, for example, the introduction of a zoom lens to the compact. This will probably place the product at the top of the sales figures. Competitors respond with rival products and the technology becomes easier to produce. At this point styling and eye appeal become the main selling point for a camera that is in a range of equally advanced products. As the technology is superseded by the latest developments it moves down the scale, no longer high-tech and no

longer expensive. It relies on marketing and styling to sell. Eventually the technology will become completely redundant when cameras of similar price are produced with more advanced resources and the original camera has lost its competitiveness. For example, take the basic mechanical point and shoot camera. When first introduced it was an immense success, it made photography cheap and easy. Its cheapness and simplicity made it consistently popular for a long time, using many style changes and marketing ploys as competition was intense. Eventually the basic point and shoot was at the bottom of the snapshot market with the introduction of versions with internal flashes and other features. With the introduction of electronics much more features could be controlled with the same ease of operation and with higher results. Now with the use of electronics a camera that provides more features and higher quality results can be produced cheaper than mechanical versions, so cheaply in fact that it is only used once then discarded by the user. The mechanical point and shoot has been superseded by the electronic camera. The loop can be seen in effect again as now even the most advanced electronic cameras using the most advanced film are being superseded by the production of digital cameras.

CONCLUSION

With the introduction of roll film the camera became available to a wide range of the general public. The portable cameras at the lower end of the market were for years uncompromisingly simple in function. The higher end of the market reflected the development of expensive systems to deal with a wide and varied range of circumstances. The camera was originally designed as a tool to record events for posterity. Improvements in manufacturing technology, materials and processing resulted in a wide variety of functions and capabilities attaching to cameras. A large range of cameras of various styles and performance capability were produced from basic snapshot to complicated camera systems. The camera became a statement of lifestyle with as many variations as there was target markets. With the invention of the microchip and its introduction into photography the quality and usability of cameras has greatly increased. With the arrival of the digital camera and the removal of the need for the use of film the camera's convenience has reached a new, higher level. There is little doubt that future advances in technology, when adapted and applied to photography, will provide easier, more convenient and still cheaper ways for cameras to produce better quality pictures.

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