COOL STYLING

REFRIGERATOR DESIGN IN AMERICA, 1930-1960

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Refrigerator Design in America, 1930 - 1960.

Final Year Dissertation;

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SYNOPSIS

When two mechanical refrigeration systems were invented in the 1920s, manufacturers chose to develop the system that would make most money, not the system that was most efficient.

The first true domestic refrigerator was the General Electric Monitor Top, introduced in 1925. Questionable marketing techniques helped to ensure its huge popularity. Indeed, the whole history of the American refrigerator is littered with immoral business practice, even by American standards.

Raymond Loewy designed the Sears Coldspot refrigerator in 1934. This was the first refrigerator to have real character and dominated the market (with the help of cynical annual restyling) for the rest of the decade.

After World War II, the refrigerator market grew because of massive increases in new home developments. When the market started to decline in the mid - 1950s, manufacturers resorted to crude attempts at market stimulation. Coloured refrigerators failed but ' sheer styled ' refrigerators, introduced in 1958 were surprisingly successful. ' Sheer styling ' meant that the refrigerator lost its gracious curves to become a rectilinear box.

Thus, the refrigerator lost its prime characteristic of recognition and was relegated to a position of complete anonymity in the kitchen.

Chapter I

Cool Styling
INTRODUCTION

> As I went out of the kitchen, the fridge started charging again.
> " There it goes! " I told Marion grimly. I kicked it but it continued to growl at me.
> " I never hear it till you remind me, " she said. I tell you, nothing rattles her!...
> " I must get an electrician in to look at it, " I said. " Unless you actually enjoy the noise, that is. It just sits there gobbling electricity like a - "
>
> " A robot? " Marion suggested.
> " Yep "
>
> (Aldiss 1989, p. 75)

Today, refrigerators are passive machines that lurk in the kitchen, humming occasionally. Sometimes, the refrigerator will be coated with the dominant kitchen laminate to complete its camouflage and ensure its anonymity.

Why have we come to accept the refrigerator as an appliance without character ? Has it always lacked presence, and if not, why has it changed ?

Lucid explanations are to be found in an examination of the refrigerator industry and market in America from 1930 - 1960. This period was, arguably, the most creative era of American design. Industrial design was used to boost the economy in the 1930s and then to satisfy the huge consumer demand of the 1950s. Refrigerator design went through a similarly fertile phase. But the refrigerator market was always primarily a sellers one. Manufacturers manipulated user needs and aspirations throughout the development of the refrigerator.

While many American refrigerators of the 1930s and

1950s were attractive looking machines with a presence of their own, this thesis will show that straightforward evolution (regarding changing styles, requirements or manufacturing abilities) had little to do with how refrigerators looked.

Actually, the changing forms of refrigerators from 1930 - 1960 were results of artificial market stimulation, which will become clear...

Chapter II

The Depression
1930 - 1939

This chapter deals with the development of the first refrigerators and their impact on the American home and economy. The origins of planned obsolescence will be examined as will the impact of the age of streamlining on the domestic refrigerator.

In 1930, prepackaged frozen foods were launched on an unsuspecting American market. Their introduction helped to stimulate sales of refrigerators which were already declining for a number of reasons. The onset of the Depression, with resultant lack of disposable income, resulted in a glutted refrigerator market. At this time, refrigerators were hugely expensive, costing one quarter of the average annual industrial wage. So the relatively small number of Americans that could afford to buy refrigerators either had one already or wanted to spend their incomes on more essential items.

Though this market stagnation was a result of the Depression, it would have occurred eventually, with general economic forces.

Refrigerators in the early 1930s were, without exception, large, bulky and expensive products. The high cost (initial and running) of refrigerators did not guarantee technical efficiency. Refrigerators were sold, for ten years, from their introduction in 1923, on the basis of novelty rather than technical or aesthetic brilliance.

To understand why the domestic refrigerator looked and operated as it did in 1930, a brief look at earlier

developments is enlightening.

By 1920, most American homes had iceboxes (fig. 1). These were inert, ornate, insulated cabinets into which regularly purchased blocks of ice were placed with perishable food. The low temperature gave the food a longer storage life. Mechanical refrigerators (as opposed to inert iceboxes) were used in industry. These were huge machines, powered by steam engines and cooled by water. Because of huge bulk and cost they were unsuitable for private, domestic use. There were many technical obstacles in the way of the development of the domestic refrigerating machine,but because the potential market was enormous (this was obvious because of great annual increases in demand for ice and iceboxes) there were also many engineers trying to solve these problems.

In 1923, the officers of the General Electric Company asked one of their engineers to do an in-depth study of the refrigeration business. Two methods of mechanical refrigeration had been developed by this time : the compression and absorption systems. These systems differed mechanically (for full technical explanation, see Appendix , Focus, 1987, p. 102). The compression system used an electric compressor and pump to circulate the cooling liquid around the cold cabinet. The absorption system used simple gravity and the actions of expanding and condensing gas to maintain the cycle, requiring no moving parts (except a thermostat or timing switch). The compression system could be powered only by electricity but the absorption system could use electricity or gas to heat the coolant initially.

The General Electric report Domestic Refrigerating Machines, concluded that the company should develope and manufacture an air - cooled compression machine (for which it already owned a patent) not because it was a better system (both systems still needed much development) but because General Electric stood to make

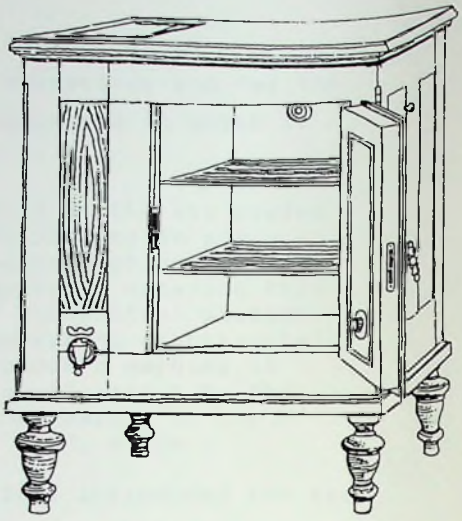


Fig. 1
Wooden Ice Box, 1901
Iceboxes were, typically, highly ornamented and lacked discernible identity.

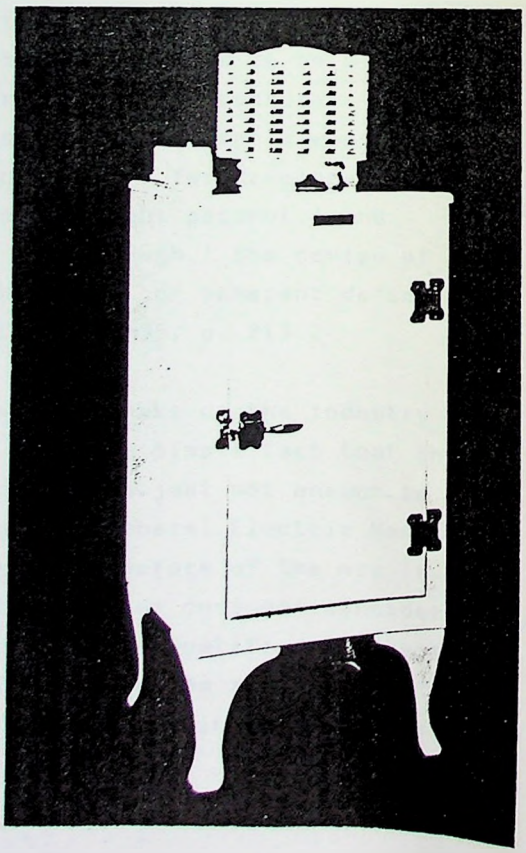


Fig. 2
G.E. Monitor Top, 1925. The first true domestic refrigerator. Its unique form was used, with huge success, as a marketing device (see fig. 2a).

most money from it, both for themselves and for the electric utility (supply) companies on which it depended :

> The electric power bill of the air cooled machine would be about $1.30 more in six months than the water cooled machine... Since the General Electric Company is entering this field for the benefit of the central station [the company that is generating electricity] it would seem wise to exploit a machine in which the total revenue would accrue to the central station rather than partly to the water works. (DRM - GE 1923, p. 24)

In 1925, General Electric introduced the air cooled Monitor Top refrigerator, so called because the mechanical system was in a cylindrical box atop the cool cabinet, resembling a civil war gunboat. By 1930, through the use of outlandish advertising schemes (including the first use of junk mail!) over 50,000 Monitor Tops had been sold.

So it is clear that in the early 1930s, the refrigerators on the market were designed to be of greatest benefit to the manufacturer and not the consumer. Although Servel (refrigerator manufacturer) was producing absorption machines, lack of capital for development led to a small market share (about eight percent) and production stopped in 1956 even though ' the demise of the gas refrigerator was not the result of inherent deficiencies in the machine itself'. (Cowan 1985, p. 213)

The Depression served to shake up the industry when the manufacturers realised that the simple fact that their cabinets ' were refrigerators ' was just not enough to keep sales bouyant. Although the General Electric Monitor Top is defined as a ' classic ' typeform of the era it shows little or no aesthetic input or consumer considerations (see fig. 2). This appearance may be justified by the fact that it was created in a time before the existence of the modern industrial designer and results in a completely functional shape.

With inflation rapidly increasing and manufacturers resorting to price undercutting, the government introduced the National Recovery Act in 1932. This act introduced minimum retail prices for products and, though it was short lasting, it allowed manufacturers to recognise that ' quality and price being equal, a products appearance became paramount in attracting the buying consumer ' (Pulos 1983, p.346).

In 1930, Norman Bel Geddes' (1893 -1958) conceptual work on refrigerators for General Electric was considered too radical.General Electric wished to retain the Monitor Top imagery / typeform because of excellent product awareness among consumers.

Geddes' proposals were rejected and a former associate, Henry Dreyfuss (1903 - 1972), was hired in 1933 (again on a consultative basis) to make another effort at upgrading the refrigerator.

Though much of Henry Dreyfuss' work was valid, his obsession with the science of ergonomics (making products fit the requirements of the human body) resulted in plain, functional and virtually minimalist products. ' Dreyfuss generally avoided stylish extravagance '(Bayley 1985, p.119). Nowhere is this deliberately suppressed aesthetic creativity more evident than in Dreyfuss' redesigned General Electric refrigerator of 1934 (fig. 3).

Dreyfuss moved the unit's mechanics from the top cylinder to under the storage box. The sides of the box (for lack of a better word) were lowered, losing the spindly legs of the earlier models. The new refrigerator was described as ' cleanlined '. It seems that Dreyfuss was most concerned with ease of cleaning of the unit. This concern resulted in less obtrusive hinging and latch mechanisms and a complete absence of surface ornament.

Fig. 2a
Typical General Electric advertisement for the Monitor Top, 1928.

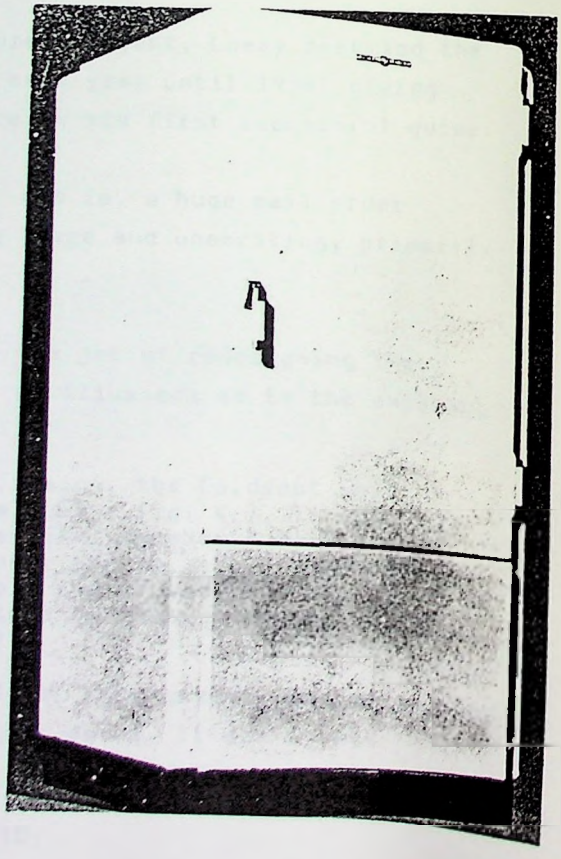


Fig. 3
G.E. Refrigerator, 1934
Designed by Henry Dreyfuss.
Loss of unique Monitor Top form would prove damaging to G.E. during the increasingly competitive 1930s.

The only thing less inspiring than a tastefully ornamented / detailed, white box is a plain, white box. A plain box is the product of the engineer. A designer must be expected to add something to a product beyond its immediate functional requirements.

Although refrigerator design branched off in another direction at this time with Raymond Loewy's (1893 - 1986) Coldspot refrigerators, Dreyfuss' design legacy may now be seen embodied in the ' plain white box ' refrigerators seen in most homes today.

In the other direction was the work done by Raymond Loewy for Sears Roebuck's refrigerator. This job was to have three major effects :

1. As a result Raymond Loewy became one of the world's best known and most prolific industrial ~~industrial~~ designers.
2. Industry became acutely aware that 'good design' would help sell products.
3. To keep huge sale figures bouyant, Loewy restyled the Coldspot refrigerator each year until 1938, giving us planned obsolescence in its first successful guise.

Sears Roebuck was, and is, a huge mail order company with an unexciting image and unexciting, primarily rural, customers.

Raymond Loewy took the job of redesigning the Coldspot refrigerator with no illusions as to the existing model's validity -

> When we began our design, the Coldspot unit then on the market was ugly (fig. 4). It was an ill-proportioned vertical shoebox " decorated " with a maze of mouldings, panels, etc., perched on spindly legs high off the ground, and the latch was a pitiful piece of cheap hardware. (Loewy 1979, p. 100)

The redesigned Coldspot refrigerator was introduced to the market in 1934. Without doubt, it was a vast

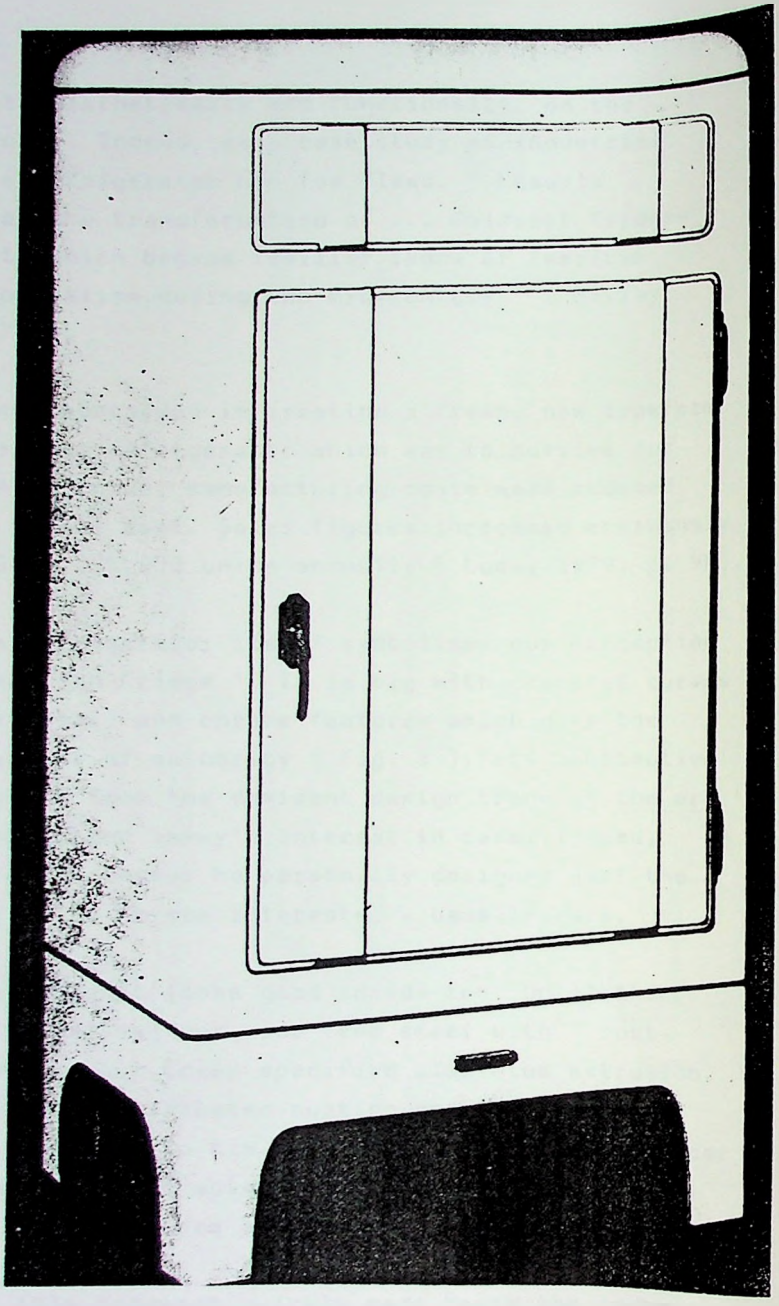


Fig. 4
Sears Roebuck Coldspot Refrigerator, 1933. Sold through the company's own mail order catalogues, the Coldspot was a typicl contemporary refrigerator. It was poorly engineered and described by Raymond Loewy as ' ugly '.

improvement, aesthetically and functionally, on the previous model. Indeed, as a case study of industrial design, the refrigerator has few flaws. ' Loewy's hallmark was the transformation of ... Coldspot fridges into objects which became familiar ikons of American consumer journalism during the mid-century ' (Bayley 1985, p. 178).

Loewy succeeded in creating a fresh, new typeform for the American refrigerator which was to survive for 25 years. As a bonus, manufacturing costs were reduced along with retail cost. Sales figures increased enormously from 65,000 to 275,000 units annually (Loewy 1979, p. 98).

The refrigerator itself symbolises our conception of ' The American Fridge '. It is big with graceful curves and surface detail and chrome features which give the appliance an air of authority (fig. 5). Its 'automotive' styling results from the dominant design trend of the era - streamlining, and Loewy's interest in cars. Indeed, later in Loewy's career he personally designed just the products in which he was interested - usually cars.

The Coldspot looks good inside too. Until then, refrigerator shelving was made from steel with ' rust-proof ' coating, but Loewy specified aluminium extrusion fabrication. This eliminated rusting and reduced labour costs. The idea came to him from radiator grilles in a car factory in Detroit, so automotive influences also came to the Coldspot on a more subtle level.

The 1934 Coldspot quickly made Sears the industry leaders in refrigeration (Meikle 1979, p. 104). It exposed its main competitor, the General Electric refrigerator, for what it was - a visually shallow, unappealling box. Sales figures reflected market aspirations. Gleaming Skyscrapers and streamlined cars were improving the quality of the forward looking environment.

COLDSPOT

REG. U.S. PAT. OFF.

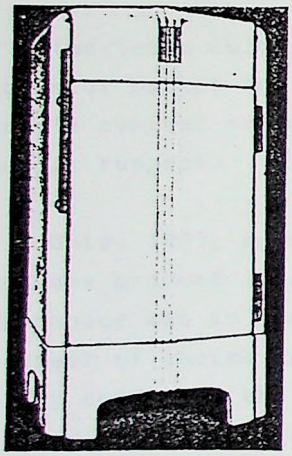
"Super Six"

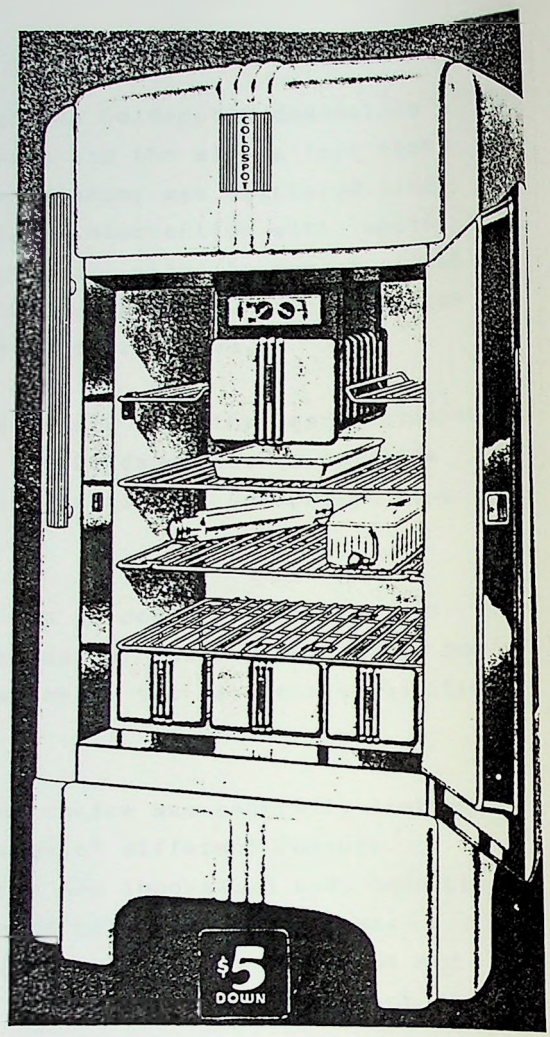
Lovely Modern Design
Super-powered "Package Unit"
Full 6-cubic foot size
About half usual price

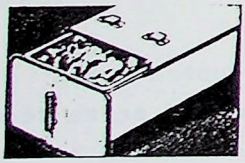
A NEW COLDSPOT for 1935 and a NEW Standard of Value in electric Refrigerators. By Value we don't mean just a lower price. You will never appreciate the Value offered in this COLDSPOT merely by looking at its price. Here is all we ask: Forget the price for the moment and consider this COLDSPOT purely in terms of Quality. Study its Beauty. Check its features. Analyze it strictly in terms of what it offers you. Then compare it with any other refrigerator of similar size, selling in the $250 to $350 class. We say that you will find the COLDSPOT actually a *Better* refrigerator, *In spite of the Fact That It Costs Only About Half as Much.*

USE YOUR CREDIT. You don't have to pay cash. See Easy Payments Prices and Terms on page at right.

All Prices for Mail Orders Only.

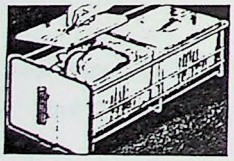






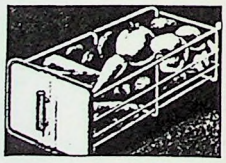
VEGETABLE FRESHENER

Large, covered, porcelain enamel vegetable freshener for keeping lettuce, celery, tomatoes, etc. in a fresh, crisp condition. Easy to keep clean and sanitary. Slides in and out exactly like a drawer.



STORAGE BASKET

Large wire basket, containing two oversize covered glass dishes to keep butter, salads or left-overs from absorbing the taste of other foods in the box. These dishes can be removed for kitchen use if desired.



STORAGE BASKET

An open wire basket for holding coarse vegetables, fruits, etc. to eliminate breakage. (This container and the 2 shown at left suspend from lower shelf like drawers.)

WATER COOLER

Covered glass water cooler with down faucet. Holds about 2 q liquid. Can be used for iced tea ade or other beverages. Especia able during the hot months.

Fig. 5
Sears Roebuck Coldspot Refrigerator, 1934. The restyled Coldspot's beauty was loudly proclaimed. Huge sales figures confirmed Sears' confidence in the product.

The major reason for the Coldspot's domination of sale figures in this period was the simple fact that it looked good. The American economy was shattered like never before. Government trade intervention with import tariffs cut off America's goodwill with its export market. Americans couldn't afford to buy their countries products and nobody else wanted them (Meltzer 1990, p. 7).

To this land of melancholy came the Sears Coldspot. With its aggressive charm, the Coldspot exudes optimism and gave its buyers something previously unexpected of a refrigerator - satisfaction.

The Sears Coldspot was to dominate the American refrigerator market for the rest of the decade, partly due to Loewy's cynical exploitation of the designer's abilities and public respect.

Until 1935, consumer choice was generally limited to the same product in a range of different colours. Colour choice was in itself a new innovation and, honestly, this aspect of choice appeared mainly because it was extremely cheap for the manufacturer to simply paint his products different colours with no machine investment required.

Sears executives decided that the best way to keep Coldspot sales bouyant was to give it an annual cosmetic facelift : Subtle changes which would serve to make the ' new model ' recognisable as 'the new model ' each year. Raymond Loewy was a man with few scruples. Though he, and other prominent industrial designers, had an angelic public image as the saviours of 'the American Dream' (in no small part they helped to reverse the Depression), he accepted the job on the strength of a rising annual commission.

His first facelifted model was launched in 1936 (fig. 6). It differed from its predecessor only externally

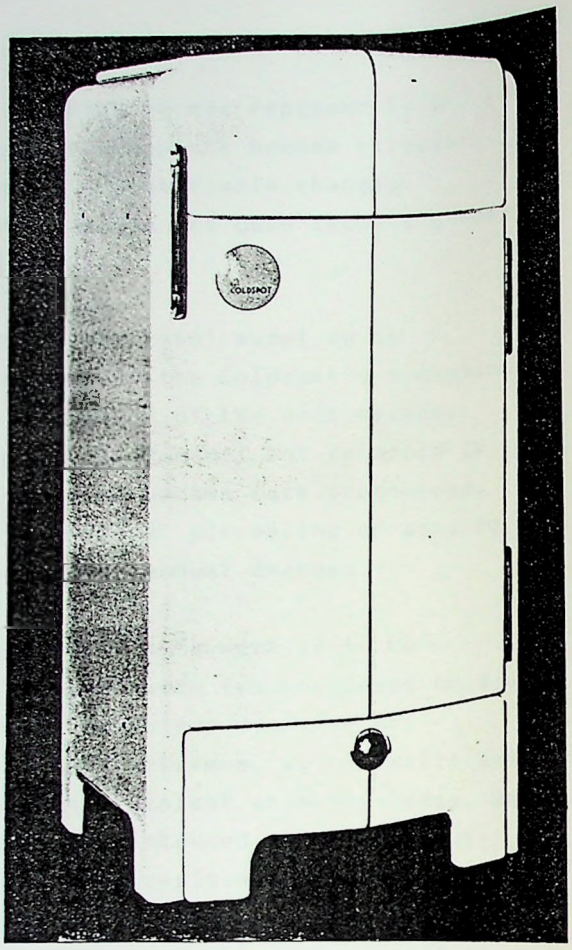


Fig. 6
Sears Coldspot, 1936.
Loewy's first restyle of his own initial design. With its chrome strip, the Coldspot now appears to be regressing towards the original (pre-1934) aesthetic.

and only slightly. Vertical ribbing was replaced by a chrome strip. The rectangular nameplate became circular. These and other functionally unjustifiable changes involved no major production costs yet gave Sears a product that could be advertised as new.

The success of each 'restyled' model is as surprising as the illogicality of the Coldspot's evolution. For example, the gap at the bottom of the unit between the legs disappeared from the 1937 model but returned in 1938! Automotive evocations also became more pronounced, probably related to General Motors' pioneering of artificial obsolescence through superficial annual changes.

While much of Raymond Loewy's work is to be admired, his successful, cynical work for the Sears Coldspot played no small part in the widespread adoption of artificial obsolescence by manufacturers. We can still see the efforts of his predominant interest in money today. We are surrounded by junk products intended to be used until they break, then thrown away and replaced by this year's model. Actually, the fact that the pioneering success story of artificial obsolescence was the refrigerator is more ominous than we might imagine. Chlorofluoro - carbons (CFC's) have been used in refrigerator insulation and cooling fluid since 1930 but their damaging effects on Earth's protective ozone layer have not become known until relatively recently. When refrigerators are dumped, the CFC's escape and damage the atmosphere.

Raymond Loewy was so successful in his cynical styling work for the Coldspot that many consumers did junk their refrigerators and buy new ones.

So, indirectly, Loewy must bear partial responsibility for increased risk of skin cancer to us all because of the hole in the Earth's ozone layer. But ~~in~~ contrast, we must remember that in the 1930s Americans had no idea even that smoking was harmful. Unluckily, there was

no knowledge of the potential of CFC's to cause damage.

So Loewy was guilty through ignorance. It is interesting to note that in Loewy's design autobiography, he waxes lyrical about the 1934 Coldspot but makes no mention of his minor restyling of the product each year until the end of the decade. Presumably, he couldn't justify the inclusion of that work in a book that is essentially an exercise in literary masturbation (Industrial Design Loewy, 1979).

However, it may be somewhat naive to blame Raymond Loewy for today's problems when he did ,in fact make a significent contribution to industrial design. The 1930s in retrospect, helped to prepare the American economy for the mass consumerism which was to come after World War II. The depression helped speed up a process of evolution. American industry was slow, unadventurous and conservative at the beginning of the decade. By 1939 when the Depression finally ended with industry preparing to fight a war (' war clouds were looming', as they say), American manufacturing industry had been reshaped. Consumers had come to expect a certain minimum styling input in their products.

Refrigerators went full circle in just ten years. By 1940, annual sales had reached two and a half million units, with prices stabilised at below $200. Even with annual styling changes, the refrigerator market was virtually saturated. Manufacturers had given consumers white, stand - alone major appliances, cleanlined to help the housewife avoid that dreaded 'dirty appliance' stigma (sarcasm implied). What would they do next ? From the manufacturers point of view, they had been selling perfect refrigerators, according to advertising, for the past ten years. How could they create a new market for essentially the same product ? How gullible were the consumers ?

These questions were easily answered, to the manufacturers' joy, in 1940s and 1950s America.

Chapter III

World War II
1939 - 1945

World War II could not have happened at a better time for the American refrigerator industry. This chapter shows that although little refrigerator development occurred during the war, it resulted in favourable conditions for future growth.

When the New York World's fair opened in the Spring of 1939 war in Europe seemed imminent. It is hardly surprising then that the prize for an essay competition coinciding with the fair was never claimed ; a trip to ' gay, colourful Poland ' (Maltby 1989, p. 100) seemed inappropriate.

This unlucky choice of prize symbolises for me the impotency of the fair itself. While Hitler began carrying out his plans for the future ' thousand year reich ' with tanks and bombers, Americans were flocking to see how their future ' super ' highways and kitchens might look. Blissfully unaware that both concepts of the future could not coexist they saw exhibits which were, for the most part, designers' dreams. Set designs from contemporary science fiction movies would have made equally valid exhibits. The fair was actually a huge advertising / marketing show-case, which events would soon overtake.

However, When Pearl Harbour was attacked by Japan in 1941, American industry was ready for war. Refrigerator design was mostly unaffected by the war. Designers worked on essential military contracts or on the redesign of important consumer goods which had previously used materials vital to the war effort.

Refrigerator prices were stabilised by the government in an effort to keep inflation down. Since production numbers were down, price ceilings helped to prevent manufacturers from, for example, advertising the product to people who could not afford it, and increasing cost to pay for this advertising expenditure.

The war affected refrigerator design in one surprisingly important way. Previously, refrigerator icetrays were made of aluminium. The number of ice trays sold with a refrigerator was reduced because of that material's importance to the war effort. A research agency was subsequently asked to explore the possibilities of plastic ice trays. The agencies success was probably the most far reaching impact of World War II on refrigerator design.

The compression refrigeration principle was perfected during the war. This happened in response to the huge military demand for effective refrigeration. U.S. servicemen were promised that ice cold Coca - Cola would be available to them wherever they went, from North African deserts to the steaming jungles of the Pacific rim (fig. 7). Compression systems were most suited to larger applications and were widely used to keep soft drinks, beer and medicines cool.

The true effects of the war on refrigerators would not be seen until after its end. Wartime research into engineering, metallurgy and production techniques gave industry the abilities to cope with the consumer demand which was to follow.

By 1944, with the end of the war in sight, industry began preparing for the approaching market. Manufacturers jostled for public awareness. Shows and magazine features showed consumers what was to come. These visions of the future would be empty promises initially, because the first post war products would date from 1941

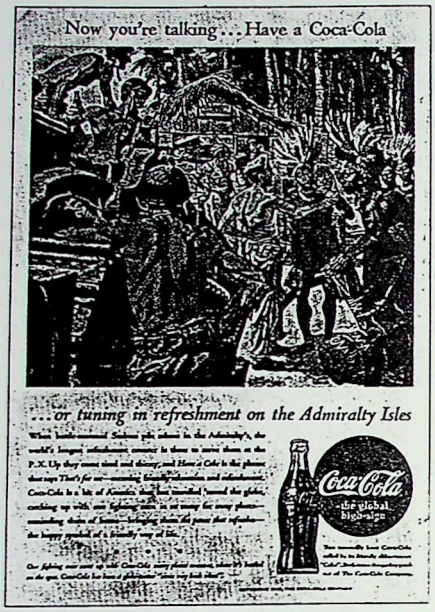


Fig. 7
Coca-Cola Advertisement, World War II.
Depicting U.S. servicemen giving culture shock to some startled natives, this ad's almost vomit inducing copy reads :

> When battle seasoned Seabees pile ashore in the Admiralty's, the world's longest refreshment counter is there to serve them at the P.X. Up they come tired and thirsty, and 'Have a Coke' is the phrase that says 'That's for me' - meaning friendly relaxation and refreshment. Coca-Cola is a bit of America that has travelled 'round the globe, catching up with our fighting men in so many far away places - reminding them of home - bringing them 'the pause that refreshes' - the happy symbol of a friendly way of life.

Now you're talking!

until new assembly lines could be built for new products.

An example of these marketing schemes was a kitchen designed by Peter Muller - Munk in 1943 for the Dow Chemical Company. The idea was to stimulate public interest in the possible uses of plastic in post - war America :

> He used the opportunity to explore the idea of the kitchen as domestic production line combining factory efficiency with elements of " charm and livability "... appliances would be part of the architecture of the kitchen rather than independant units - refrigeration... would disappear into walls, counters and ceilings. (Pulos 1988, p. 44)

While the validity of these ideas is debatable, they would soon become reality.

Chapter IV

The Orgy of Consumption
1945 - 1960

This chapter will examine the refrigerator industry's responses to the demands of the post - war market. When sales declined in the mid - 1950s, manufacturers used various methods to stimulate the market and these will be critically described.

The bikini swimsuit was created in 1946 and symbolises the air of optimism felt by all Americans. The world appeared to be a safer place (the Communist ' menace ' having yet to assume significance). Thousands of American servicemen returned home to build the dream homes that advertisers had promised through the war. They and their sweethearts had been saving in anticipation of the promised consumer paradise. Saving had also been necessitated by the lack of consumer products during the war years.

Housebuilders and product manufacturers rushed into production to meet demand :

> Within one year after the end of hostilities, 12 million American men were demobilised. Annual new home starts went from 200,000 in 1945 to 1,154,000 by 1950 . (Pulos 1983, p. 422).

Initially, the huge demand for appliances like refrigerators to outfit the new homes led to production of pre - war models with minor detailing changes. As demand began to flatten out, manufacturers examined their products and production lines with a view to modernisation.

Anything out of date was ruthlessly discarded. In keeping with technological advances made in wartime, there was a rush to modernise all branches of industry. Industrial design became an attractive career for many veterans. Thanks to the G.I. Bill, veterans could buy homes without a deposit.

Combined with a well paid job, the bill gave millions of Americans the ingredients needed to produce a ' consumer boom ' - a home to furnish, and a high disposable income with which to do it.

However, industry was slow to initiate product development :

> The chief challenge for home builders, car manufacturers, furniture and appliance manufacturers... was to get the product out as quickly as possible and at an affordable price . (Hine 1987, p. 18)

By 1950, refrigerators had changed only by way of increased capacity : the proliferation of suburban developments resulting in increased need for fresh food storage. Indeed, the development of suburbia had major effects on refrigerator design. As well as storing the family's food, refrigerators were increasingly marketed as tools for the new ' hostess ' housewife - the popularity of, for example, Tupperware parties produced a greater need for the storage of sour cream dips, white wine and other consumables ' vital ' to a successful social gathering. These semi - formal gatherings often constituted a housewife's main social interaction with the other residents of the curved ' street ' where every home had a lawn and the kids could safely play outside. Thus, the important social role of the refrigerator was exaggerated in manufacturers' advertisements. Housewives were made to feel that there was a stigma attached to not having this years refrigerator and, of course, having it permanently bulging with food and drink.

So, housewives in the early 1950s were urged to buy new refrigerators on the basis that failure to do so would result in their becoming social outcasts. Surprisingly, these campaigns were generally successful.

By 1950, manufacturers were given an opportunity to upgrade their products. Raymond Loewy worked on the new

Frigidaire refrigerator, introduced in 1950. This refrigerator was basically a copy of the annual cosmetic change for Coldspot in 1938 (fig. 8, 9). The push - button door release handles (with obvious automotive influences) are strikingly similiar. The 1938 Coldspot used two horizontal lines to break up the front surface. In the Frigidaire, only one line is visible. This can be attributed to the reduction in mechanism size after wartime research, resulting in greater capacity and a larger door size. The primary aesthetic difference between these two refrigerators is the absence of chrome - plated tubing around the Frigidaire's base.

However, there were to be few real changes to refrigerator design or the whole concept of domestic refrigeration until later in the decade. These changes were precipitated by changing patterns of consumption. The period after the war saw manufacturers and consumers concerned with quantity and not quality. People were tired of austerity, the Depression and war and used their disposable income to simply acquire things. Manufacturers knew that virtually anything (within reason) they produced would sell, whatever its aesthetic or functional merits. Only a decline in the market would cause a reevaluation of products. The decline was imminent :

> It had been obvious that this great spending spree could not continue indefinitely, and by 1952 businessmen began to worry. Not only were Americans finally catching up with their consumption, but the new prime generation of consumers that was about to come on line was the smallest ever [due to extremely low birthrate during the Depression]. Either the end of the catch - up period or the decline in the population of the chief consuming generation could cause serious problems by themselves. Together, they portended disaster. (Hine 1987, p.18)

The automobile industry was, typically, first to react to this changing climate. 'Automakers decided that if they were not going to sell more cars, they would have to sell more car ' (Hine 1987, p. 19). This

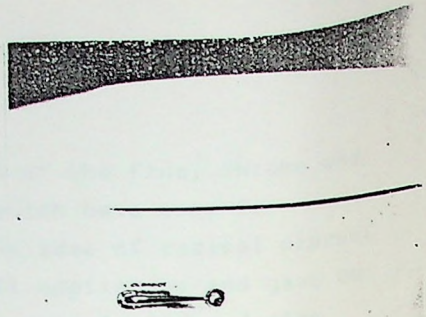


Fig. 8 (right)
Sears Coldspot, 1938.
Note the use of horizontal split lines to ' break up ' the front surface. The door handle has obvious automotive influences.

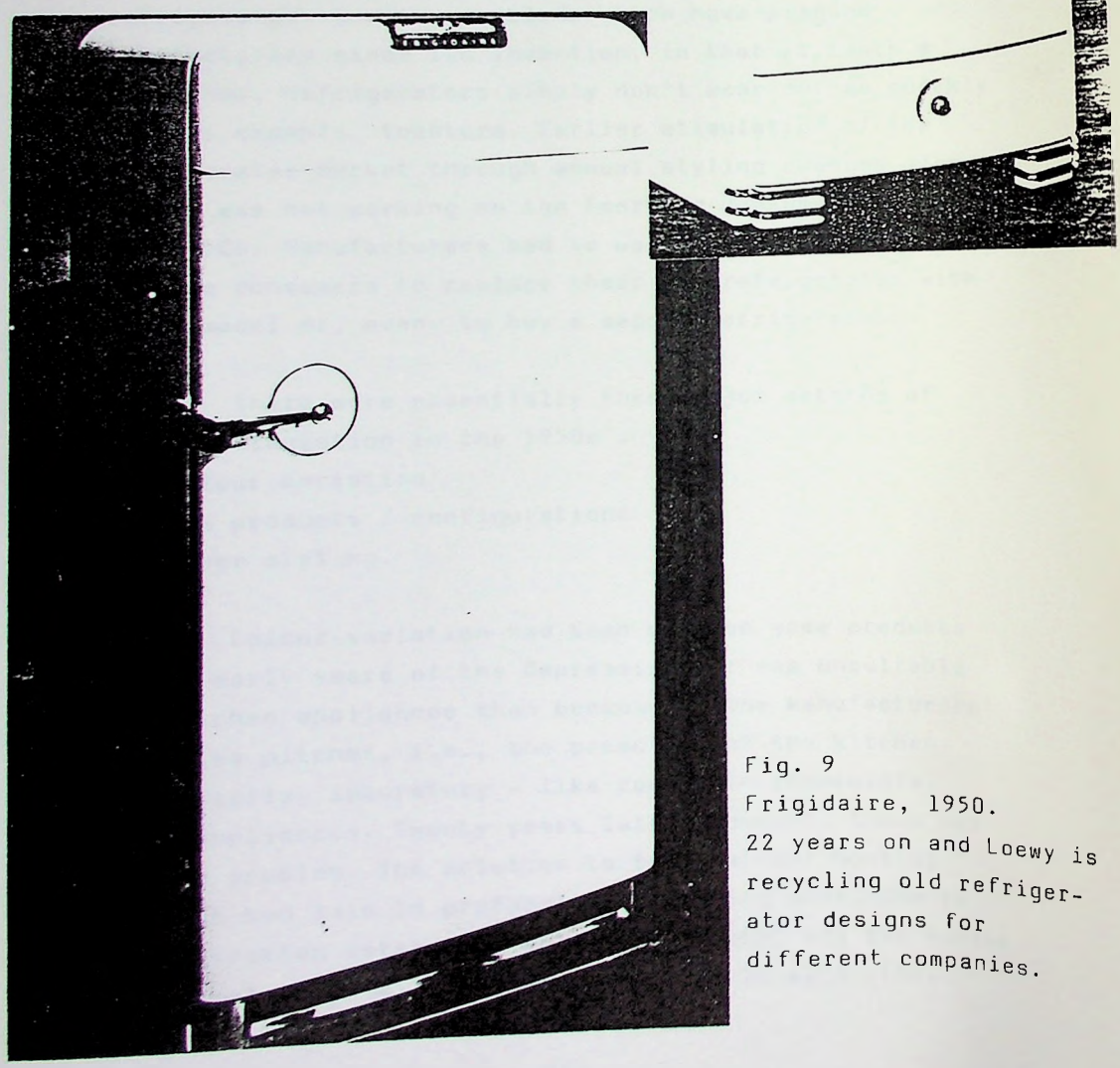


Fig. 9
Frigidaire, 1950.
22 years on and Loewy is recycling old refrigerator designs for different companies.

decision resulted in the explosion of the fins, chrome and rocket features in American cars which have come to symbolise the 1950s in America. The idea of radical product development spread to virtually all appliances and gave us the most vibrant and exciting period in American design. The mid 1950s are generally considered to show vulgar America at its worst. However, when the lasting qualities of so many 1950s designs are still apparent, overall criticism is unfair.

Refrigerator design was to go through its most creative phase since the conception of the 1934 Sears Coldspot. This was largely due to the nature of the refrigerator, causing problems which have plagued manufacturers since its invention, in that it lasts a long time. Refrigerators simply don't wear out as quickly as, for example, toasters. Earlier stimulation of the refrigerator market through annual styling changes alone simply was not working on the American consumer of the mid 1950s. Manufacturers had to use more dramatic methods to urge consumers to replace their new refrigerator with a new model or, even, to buy a second refrigerator.

There were essentially three major methods of market stimulation in the 1950s :

1. colour variation
2. new products / configurations
3. sheer styling.

Colour variation had been used on some products in the early years of the Depression but was unsuitable for kitchen appliances then because of the manufacturers' own sales pitches, i.e., the promotion of the kitchen as a sterile, laboratory - like room with immaculate, white appliances. Twenty years later, however, there was no such problem. The solution to the post-war housing shortage had lain in prefabricated housing developments. Prefabrication determines by necessity that all the houses in a development will be quite similiar to each other.

Not surprisingly, people needed some personalisation within these standard environments. Colour and decoration were applied to every room in the home, especially the kitchen which had evolved into a family room from its earlier position as the housewife's ' workshop '.

Naturally, manufacturers began to offer their refrigerators in a range of colours. The 1954 International Harvester refrigerator was available in yellow, inside and out. ' Sunshine yellow was selected as the color which would have popular acceptance and be flattering to all foods (S.I.D. 1954, p. 99). This refrigerator also came with a ' Decorator ' option, by which the consumer could apply fabric or paint to the exterior to make the refrigerator harmonise with the kitchen. Refrigerators appeared in many colours and colour combinations. The colours were predominantly pastel and always had titles, e.g., ' Bermuda Pink ', ' Lagoon Blue ' and ' Sand Beige '. Different coloured refrigerators were also useful to manufacturers on a more subtle level. Besides stimulating the market to purchase refrigerators to match their kitchens, the lacklustre colours of same soon became dated, thereby promoting early replacement.

Perhaps the colours were poorly chosen, perhaps consumers simply had the strange preconception that survives today - that refrigerators must be white, or perhaps consumers were neither as gullible nor fickle as had been presumed. Whatever the reason, the result was that coloured refrigerators did not catch on.

A more radical and creative attempt to increase the refrigerator market saw the introduction of a number of remarkable refrigeration concepts in 1954.

General Electric had been experimenting with alternative refrigerator configurations for a number of years before the 1954 introduction of the XR - 10. The XR - 10 was as different from the conventional

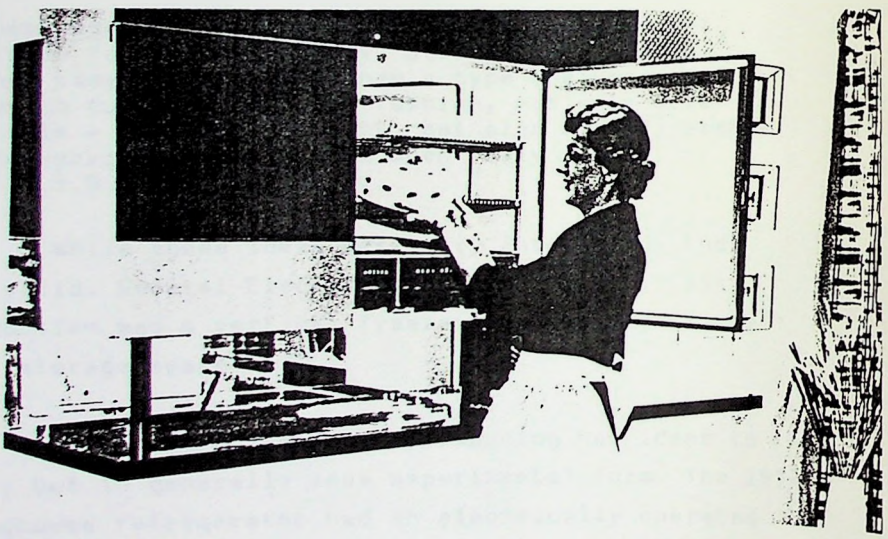


Fig. 10
General Electric XR - 10 Refrigerator, 1954.
The XR - 10 was a brave, but foolish, attempt
to stimulate the domestic refrigerator market.

refrigerator as was possible (fig. 10), in that it had a predominantly horizontal format, was mounted above a work-top to serve as a divider between two rooms and was accessible from both sides. The essence of the XR - 10's failure was that it needed such special treatment : the architect had to plan a space for it, the carpenter had to build a special place for it (not easy with a pre-fabricated house) and an engineer was needed to fit the refrigerator.

Arthur BecVar (1911 -), and the Major Appliance Division at General Electric were quite busy at that time. Besides the XR - 10, they introduced a very interesting new refrigerator in 1954. Though the format was conventional (big, white cabinet), the interior was very different (fig. 11) :

> Semi-circular shelves which rotate outward for fresh food accessibility, storage convenience, and easy cleaning. The new - type shelves, which turn Lazy - Susan fashion, not only give table - top accessibility, but also are adjustable to varying heights, even when fully loaded (S.I.D. 1954, p. 179).

While these ideas were very interesting and quite valid, General Electric's only successful 1954 introduction was a vertical freezer that made full use of all storage space.

Other companies were introducing new ideas to the market, but in generally less experimental form. The 1954 Westinghouse refrigerator had an electrically operated door which opened when a pad was touched. This was almost a necessity (as opposed to a luxury) when one considers its huge 324 litre capacity. This particular refrigerator also had a sky blue interior and worked on the ' Frost - Free ' (dry, cool air) principle.

Automatic ice - makers appeared on the more expensive refrigerators in 1954. The ice - maker was

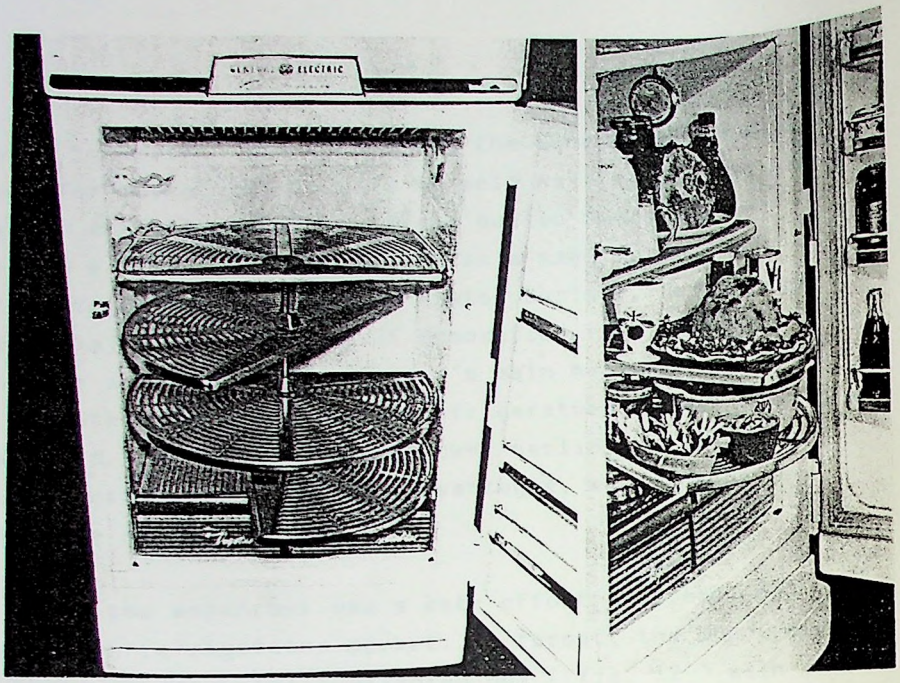


Fig. 11
General Electric Refrigerator, 1954.
A very creative solution to the problems of refrigerator access. Unfortunately, it was too radical for consumers.

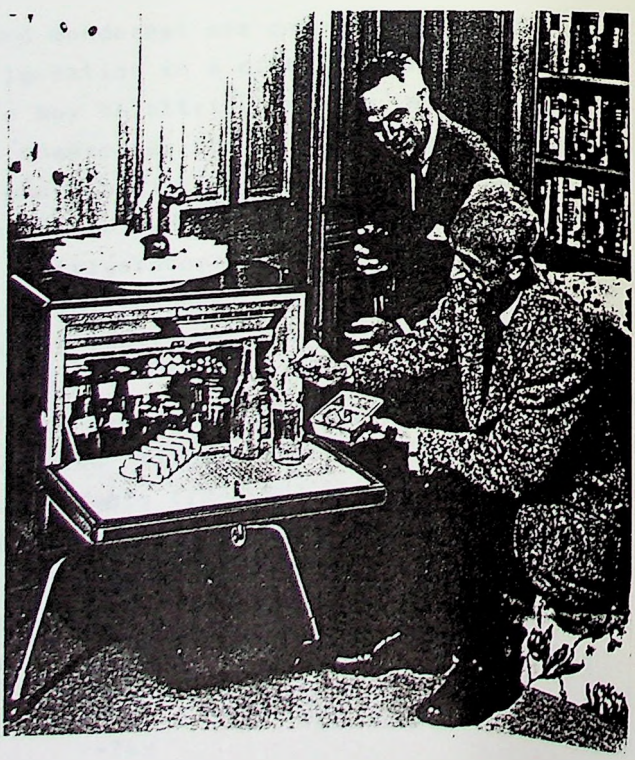


Fig. 12
Servel Wonderbar, 1954.
Poor marketing led to poor sales. The Wonderbar was subsequently removed from the market.

invented by Servel, who introduced the Wonderbar. Created as much for marketing purposes as well as its utility, the Wonderbar was intended to increase public awareness of Servel as a company and of Servel as a manufacturer of electric refrigerators. As was stated earlier, Servel was the only major manufacturer of absorption refrigerators to to survive into the 1950s. Servel's main mistake was that they operated their absorption refrigerators on gas only. If they had turned to electric power earlier, absorption refrigerators, with all their advantages, would probably be far more common today.

So the Wonderbar was a late effort to break into the electric refrigerator market. In format, the Wonderbar was simply a horizontally oriented box (fig. 12) with a door that pulled down to form a cocktail mixing / serving area. Wheels allowed the unit to be used anywhere in the home. Its poor reception in the marketplace was attributable to relatively low - key marketing. The advertising for Wonderbar didn't concentrate on its utility possibilities or that it used a new form for a tired product.

The XR - 10 and Wonderbar are commendable products because the took refrigeration in a different direction. Poor consumer response may be attributable to intrinsic flaws in the products themselves and difficulties in their marketing or that it was too little, too late from the manufacturers. Consumers had been quickly conditioned by advertising to expect refrigerators to be big, white beasts that stayed in the kitchen. In under thirty years, refrigerators had reached their only acceptable typeform.

By the end of the decade, all attempts at broadening the refrigerator market had failed. Manufacturers concentrated on the inevitable trend - ' sheer styling '. With the exception of the 1933 General Electric refrigerator, all refrigerators of the 1930s were vertical box - shaped but with sweeping curves which masked their basically geometric forms. These curves may be regarded as inevitable

results of the ' Streamlined Era 'but most refrigerators kept them until the late 1950s. Slightly curved forms were more suited to pressing and stamping manufacturing processes but the curves also lent a great deal of character to these large appliances. Indeed, General Electric refrigerators of the early 1950s had conformed to the curved, slightly swollen look.

' Sheer styling ' simply meant the elimination of curved surfaces and the formation of a pure, geometric shape, with all corners right - angled. This geometricisation was related to general kitchen trends. The built - in kitchen was becoming increasingly popular and the natural progression was integration of major appliances into the cabinetry, giving more worktop space and anonymous appliances. ' The appliances were no longer seen as objects in the kitchen. Rather, they were the kitchen... Thus appliances were increasingly built into kitchens ' (Hine 1987, p. 54).

But this trend was more aesthetic than functional. ' Built - in ' appliances tended to consume space rather than conserving it.

Refrigerators were typically massive, bulky appliances which couldn't conceivably be contained beneath a worktop, so manufacturers aimed at creating a look that would compliment the geometric kitchen as opposed to being an integral part of it.

The first and most successful campaign publicised the ' sheer look ' Frigidaire refrigerator of 1958. The refrigerator itself was a basic box available in a range of colours but creative, if not questionable, advertising gave it surprising appeal. That American consumers could even relate to the advertising images is an indictment of the American psyche.

The ' sheer look ' in refrigerator design was

tied to the ' sheer look ' in fashion :

> Advertisements for the new line... showed models in Oleg Cassini [fashion designer] " sheer look " gowns performing the " sheer look " gesture [a right angle] with elbow length gloves (Pulos 1988, p. 137).

The link with fashion was simply a contrived marketing effort which, surprisingly, succeeded. Even in magazine advertisements (fig. 13) the 1958 Frigidaire looks like a monolithic slab without even the most tenuous link to high fashion. It does echo one of the dominant architectural styles of the day : International ; with sharp edges and the minimum of surface ornament. Indeed, when compared with the Seagram Building, New York (architect : Le Corbusier, completed in 1959 ; fig. 14) the resemblance is quite startling.

By 1960, all domestic refrigerators had been ' sheer styled '. American refrigerators had lost their gracious curves for right angles and complete geometricisation. It is ironic that of all the attempts made in the 1950s to stimulate the refrigerator market, the least creative should succeed. There is no imagination or creativity required to ' design ' a completely geometric box. But perhaps the most disappointing aspect of ' sheer styling ' was its acceptance by American consumers. In actively supporting (by buying) ' sheer styled ' refrigerators, Americans effectively denied refrigerators with individual character any future.

As a direct result of ' sheer styling ' virtually all refrigerators today are geometric, white boxes with no discernible aesthetic input.

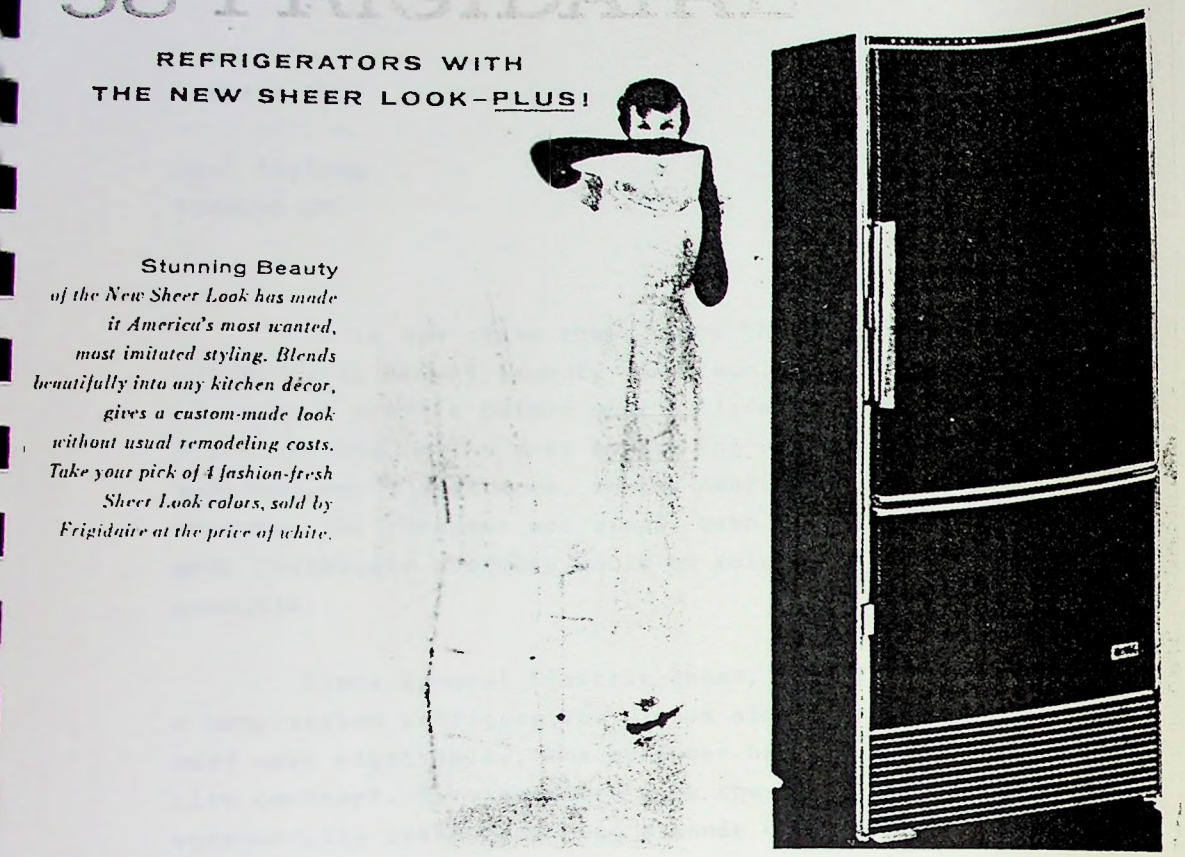


Fig. 13
Frigidaire 'Sheer Look' Refrigerator, 1958.
Even without the benefit of hindsight, this magazine advertisement looks incredibly silly. Perhaps the most astonishing aspect of this campaign was that it was so successful.

Fig. 14
Seagram Building, 1959.
Designed by Le Corbusier, this New York office block seems to have pre - empted the applic - ation of ' sheer styling ' to refrigerators.

Chapter V

Cool Styling
CONCLUSION

It is now clear that, since the creation of the refrigerator almost seventy years ago, manufacturers have always put profits before user satisfaction. While the profit motive is the only reason for virtually every manufacturer's existence, in the American refrigerator industry the consumer was simply seen as somebody to whom inadequate products would be sold as regularly as possible.

Since General Electric chose, in 1923, to develope a compression refrigeration system simply because it used more electricity, the consumer has been treated with contempt. Refrigerators were the first products to successfully intro duce mass planned obsolescence. In the 1950s, the strangest and often most pathetic methods possible were used to stimulate sales. And what have the manufacturers given the consumers for their money ? While there were some beautiful refrigerators in American homes 40 years ago, today there are neutral, lifeless objects - electric cupboards. And the system by which they operate is not as efficient as it could be. If the absorption system had been developed further, today's refrigerators might be silent, last virtually forever (no moving parts) and be environmentally safe.

The history of refrigerators and the ozone layer raises some very disturbing points. Manufacturers could make absorbtion machines today which would use ammonia as a coolant instead of freons. Instead, they recently chose to develope a new coolant which will not beCFC free for at least five years. More shocking is the fact that plain carbon dioxide can be substituted for freon in refrigerators' insulating foam with no reduction in thermal efficiency ! Yet refrigerator manufacturers simply choose not to.

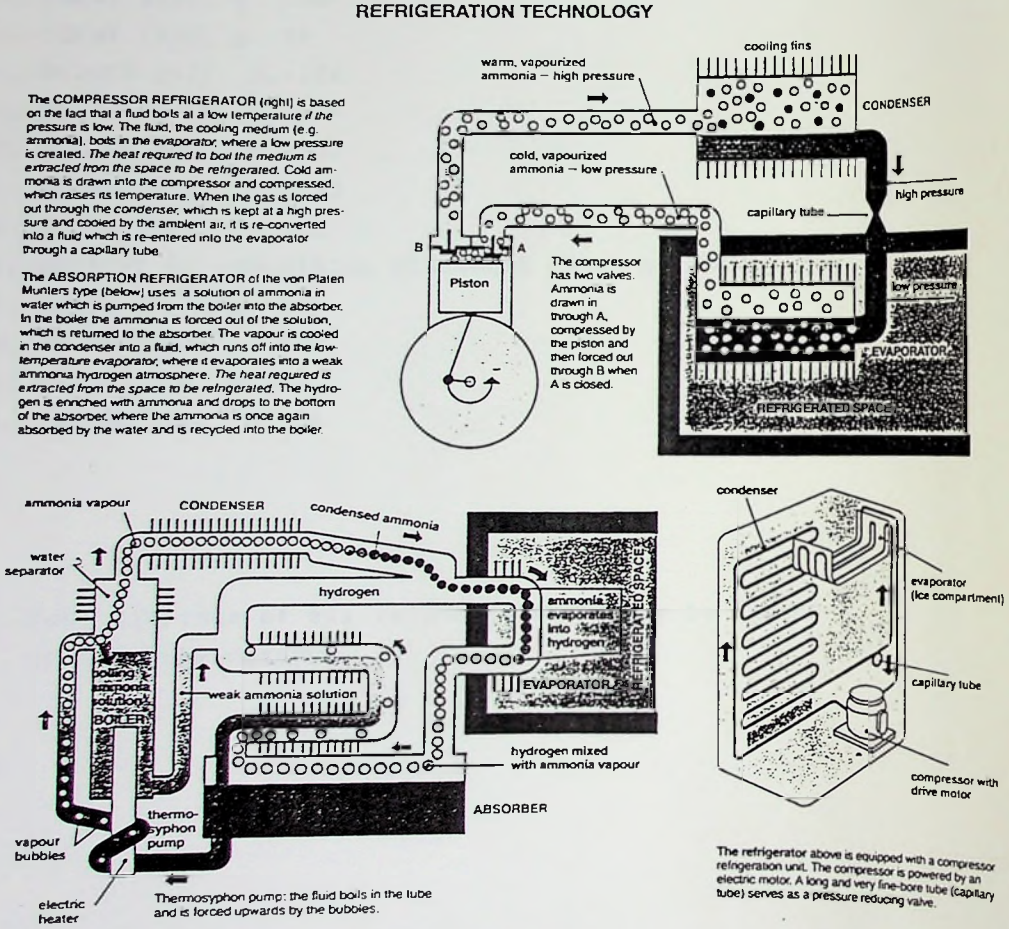
But, possibly the prime motivator to the American refrigeration industry was the almost limitless gullibility (or, stupidity) of the American consumer. The amazing manipulations of the American refrigerator market could not have succeeded without the consumers' participation.

And what of the future ? With current public awareness of the ozone problem, the absorption refrigeration system could not be more attractive. A return to refrigerator design using curved forms and restrained surface ornament would give consumers more choice and also restore the humble refrigerator to its position as the ' design king of the kitchen '.

APPENDIX

Fig. 15

How the compression and absorption refrigeration systems work.



Advantages of Absorption over Compression :

- Absorption systems can be operated by gas or electricity.
- Because it has no moving parts, the absorption system operates without humming or vibration.
- The absorption system does not use freons, making it more environmentally sensible.

References

Illustration Sources :

1. TAYLOR 1984, p. 24
2. MEIKLE 1979, p. 103
2a TAYLOR 1984, p. 25
3. MEIKLE 1979, p. 104
4. LOEWY 1979, p. 100
5. LOEWY 1979, p. 99
6. MEIKLE 1979, p. 106
7. MALTBY 1989, p. 138
8. MEIKLE 1979, p. 107
9. GARNER 1986, p. 133
10. PULOS 1988, p. 128
11. SOCIETY OF INDUSTRIAL DESIGNERS 1954, p. 179
12. PULOS 1988, p. 128
13. PULOS 1988, p. 139
14. PULOS 1988, p. 57
15. TAYLOR 1984, p. 24

Full listings of all reference works may be found in the Bibliography.

Bibliography

ALDISS, Brian. ' The Girl and the Robot With Flowers '. in Aldiss B. Man in His Time. VGSF, London. 1989

BAYLEY, Stephen. The Conran Directory of Design
Octopus, London. 1988

COWAN, Ruth. ' How the Refrigerator Got its Hum '. in MACKENZIE, D. The Social Shaping of Technology. Open University Press, Milton Keynes. 1985

GARNER, Philippe. 20th Century Style and Design
Thames and Hudson, London. 1986

HILLIER, Bevis. The Style of the Century
Herbert Press, London. 1983

HINE, Thomas. Populuxe
Bloomsbury, London. 1987

HORN, Richard. Fifties Style
Friedman, London. 1985

LOEWY, Raymond. Industrial Design
Faber and Faber, London. 1979

MALTBY, Richard. Dreams For Sale
Harrap, London. 1989

MEIKLE, Jeffrey. Twentieth Century Limited
Temple U.P., Philadelphia. 1979

MELTZER, Dr. Allan. ' The Battle for the Global Marketplace '.The Plain Truth March 1990, p. 3 - 8

PULOS, Arthur J. American Design Ethic
M.I.T. Press, Massachusetts. 1983

PULOS, Arthur J. American Design Adventure
M.I.T. Press, Massachusetts. 1988

SOCIETY OF INDUSTRIAL DESIGNERS. Industrial Design in America 1954
S.I.D., New York. 1954

TAYLOR, John. The Illustrated Encyclopedia of Technology
Simon and Schuster, New York. 1984

WHITNEY MUSEUM OF ART. High Styles
Summit Books, New York. 1986

Note :
Quotations in Chapter II from the internal General Electric report , Domestic Refrigerating Machines, 1923, have been sub-quoted from MACKENZIE, D. The Social Shaping of Technology.