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**"A man's castle is a woman's factory": Streamlining and
electric kitchen appliances**

La France, Scott Alan, M.A.

University of Delaware (Winterthur Program), 1989

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"A MAN'S CASTLE IS A WOMAN'S FACTORY":
STREAMLINING AND ELECTRIC KITCHEN APPLIANCES

By
Scott Alan La France

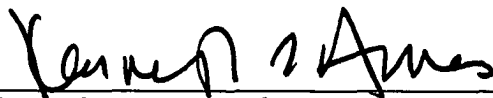
A thesis submitted to the Faculty of the University of
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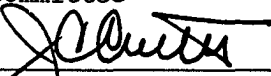
May 1989

"A MAN'S CASTLE IS A WOMAN'S FACTORY":
STREAMLINING AND ELECTRIC KITCHEN APPLIANCES

by

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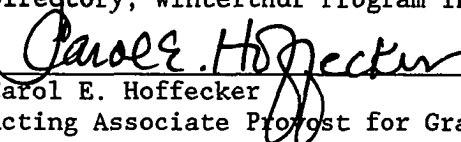
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ABSTRACT

Most Americans today choose to incorporate their micro-waves and trash compactors into a fanciful Victorian country kitchen scheme rather than anything too contemporary. But in the early 1930s, consumers chose kitchen appliances designed to evoke factory machinery. The streamlining craze of the 1930s and 1940s took a firm hold in the average American home, but only in one of the home's many rooms--the kitchen. This paper explains how streamlined machine forms became the accepted design idioms for a wide range of kitchen appliances in the 1930s.

Streamlined appliances were part of a factory-laboratory design metaphor for kitchens that emerged between the two world wars. Streamlining represents far more than merely a design trend in a series of changing styles: it demonstrates the public's optimistic view of new technologies and is a decisive break with the historical styles it replaces. Streamlining also represents continuity and tradition insofar as kitchen appliances are concerned. It fit into domestic reform trends underway since before the turn of the century. Streamlining's popularity stemmed from its ability to mediate between conflicting ideals during the late

1920s and early 1930s. In the kitchen, it bridged the gap between the home and the workplace at a time when the nature of housekeeping, the conception of the home, and the role of women was changing. The streamlined style became an accepted style that unified two distinct appliance design traditions: utilitarian tool and decorative furniture. Through the promise of a better tomorrow, streamlining helped ease the tension caused by increasing mechanization and made the new machine world seem less forbidding.

INTRODUCTION

A 1934 General Electric advertisement for home appliances from 1934 announced that "A Man's Castle is a Woman's Factory."¹ (See figure 1.) The caption seems odd today, especially considering that it was intended to appeal to women and persuade them to purchase G.E. products. Aside from the rigid definition of sex roles, the positive connotations of the factory seem strange to us now. Most Americans today choose to incorporate their microwaves and trash compactors into a fanciful Victorian country kitchen scheme rather than anything appearing too contemporary. Contemporary seems uninviting and cold. For several generations of American homemakers, the nineteenth-century "country" kitchen held no charm. In fact, in the early 1930s consumers were choosing kitchen appliances designed to evoke factory machinery. The streamlining craze of the 1930s and 1940s took a firm hold in the average American home, but only in one of the home's many rooms--the kitchen. This paper will explain how and why streamlined machine forms became the accepted design idiom for a wide range of kitchen appliances in the 1930s. G.E.'s promise to American women in its 1934 advertisement was that the kitchen of 1934 need not be the site of hours of monotonous and exhausting manual labor, but

A Man's Castle is Woman's Factory !

[illegible]

Figure 1 Advertisement, General Electric Company, 1934.

Source: Roland Marchand, Advertising the American Dream: Making Way for Modernity, 1920-1940 (Berkley, Los Angeles, London: University of California Press, 1985), 188.

that it could be run as efficiently as a modern factory with the help of up-to-date machines and methods.

Being that much closer to the realities of nineteenth-century living, homemakers of the 1920s and 1930s knew that cooking and food preparation in the pre-electric age had many drawbacks. The coal range many people feel is so quaint today actually required constant attention and heated the kitchen winter and summer. The temperature of the icebox fluctuated wildly depending on how much ice was left. Ice delivery, often unreliable, was necessary to keep food from spoiling. Mixing batters by hand made baking a tedious chore for even simple recipes.

What homemakers wanted, and in large numbers actually attained, was a compact step-saving kitchen, glistening sanitary white, and as many of the latest electric labor-saving appliances as they could afford. For them, factory and laboratory metaphors suggested higher standards of cleanliness and efficiency as well as relief from drudgery by drawing on modern science and industry. With the gloomy economic backdrop of the Great Depression, America looked to the future for better days.

The emergence of the factory-laboratory kitchen in the 1930s was part of an important transformation in American households--the mechanization of housework. Kitchens of the middle class became visually distinct from the rest of the house in a way

that proclaimed this mechanization. By and large, early twentieth-century homes were furnished with items suited to contemporary needs but cloaked in historically referential decoration. Allusions to Tudor England and eighteenth-century France were commonplace. In contrast, the kitchen of the 1930s lost the obvious decorative features that linked it to the rest of the house--its historically derived ornament, even wood finishes, wallpaper and rugs. Instead it was redesigned as the factory-laboratory within the home. Past historical styles were rejected in favor of streamlined modernism, which became the overwhelming choice. By the late 1930s a kitchen appliance without some streamlined elements would have been difficult to purchase.

This paper will focus on the emergence and acceptance of the streamlined style in residential electric kitchen appliance design as part of the factory-laboratory metaphor that emerged between the two world wars. In the context of the historical development of kitchens and home appliances, streamlining represents far more than merely a design trend in a series of changing styles: it demonstrates the public's optimistic view of new technologies and is a decisive break with the historical styles that it replaces. Streamlining also represents continuity and tradition insofar as kitchen appliances are concerned. It fits into domestic reform trends underway since before the turn of the century, and it also helped preserve the distinction between

home and workplace. The enormous popularity of streamlined designs, at least in the kitchen, can be explained by their ability to successfully mediate between the conflicting ideals of the home and workplace.

Chapter 1

ELECTRICAL TECHNOLOGY AND DESIGN

In order to understand why streamlining became widely accepted for the kitchen and its contents but not for residential architecture and most domestic furniture, it is important to consider the kitchen in relation to the rest of the house as well as the history of electric kitchen appliances. As the locus of productivity in the home, the kitchen was distinct from the other rooms. Because attitudes toward housework and the role of women in the home were changing in the early years of the twentieth century, so too did the kitchen and its contents change.

The adoption of electrical kitchen appliances was part of the industrialization of domestic work described by social historians Ruth Schwartz Cowan, Susan Strasser, and others.² New utilities and power sources such as running water, piped gas, and electricity allowed new standards of comfort, cleanliness, and convenience to be achieved in the home. Ironically, the new technologies also contributed to raising those standards. Yet the standards were rarely questioned because of the immediate improvement they seemed to offer.

Electrical kitchen appliances date to the late 1880s when attempts were first made to convert electricity to heat for cooking food. At the 1893 World's Columbian Exposition, several manufacturers exhibited experimental electric cooking devices. One exposition building even contained an all-electric kitchen. But despite the great interest in these novelties, the event ended rather badly; news reports indicate that some of the devices caught fire.³ Such were the early years for the fledgling industry. Rapid technical improvements were made in electrical mechanisms (heating elements and small motors), and by the end of World War I reliable electric models were available commercially for virtually all the appliances in use today.⁴

Although electrical appliances offered many advantages, they were hampered initially from succeeding in large markets by several factors. First, homes had to be wired for electricity and supplied with sufficient outlets for appliances, in addition to electric lighting. Second, electrical appliances were often considerably more expensive than non-electric options. An all-electric kitchen represented a significant investment in the early 1920s, one which assumed a larger proportion of the household budget than was traditionally allocated for food preparation equipment. Because of high prices, some items such as the refrigerator remained luxury items until the late 1920s. And third, the cost of electricity was initially quite high. A

limited demand for current prevented reasonable economies of scale. In the 1910s, after some initial hesitation, electric suppliers realized the wisdom of encouraging domestic electric appliance sales. Homemakers used appliances during the day when the demand for electricity was low--electricity being used at that time primarily for lighting by residential users. Gradually as more and more homes were wired for electricity and as household consumption increased, electric rates decreased and became highly competitive with other forms of energy such as coal and gas. By the mid 1920s small electric appliances such as toasters and waffle irons had become common items in middle- and upper-class homes. With the advent of reduced prices and credit plans in the 1930s, more expensive items such as refrigerators and ranges became common items in kitchens for the middle class.⁵

The establishment of markets for electrical items was a slow and difficult process. Consumers had to be convinced to change to a radically different power source than they had ever known, one that was invisible, odorless, and left no ashes. Furthermore, they had to be convinced that the benefits of an electric appliance would balance out the larger investment its initial purchase represented as well as the upgrading of electrical service often necessary in order to handle the larger power load. To overcome the initial consumer reluctance, manufacturers did, in effect, two contradictory things. They advertised the

differences between electric appliances and conventional devices in order to establish their niche in the market. At the same time, through appliance design they visually reassured potential customers that electric appliances were almost the same items they were familiar with and already owned. Electric appliance advertisements from the earliest days emphasized the unique advantages that electricity could offer the housewife: a clean power source that could cook food or keep it cold with the advantage of requiring almost no maintenance (unlike coal or gas). But even though electricity proved to be a very versatile power source--capable of producing light, heat or powering motors--consumer reluctance was only overcome gradually.

Some design historians have lamented the lack of new design forms to complement the innovative power sources of these early electrical appliances.⁶ As early inventors struggled to perfect new uses for electricity, they adapted existing devices to it. There was the technical problem of how to apply the new technology to the existing world, not how to radically reshape it. The earliest electric range demonstrates this point quite well. When George Westinghouse faced the challenge of making a suitable electric range in 1909, he modified a gas range by installing electric heating elements inside.⁷ (See figure 2.) Aside from the wires and switches visible on the side, it appeared to be a typical gas range.

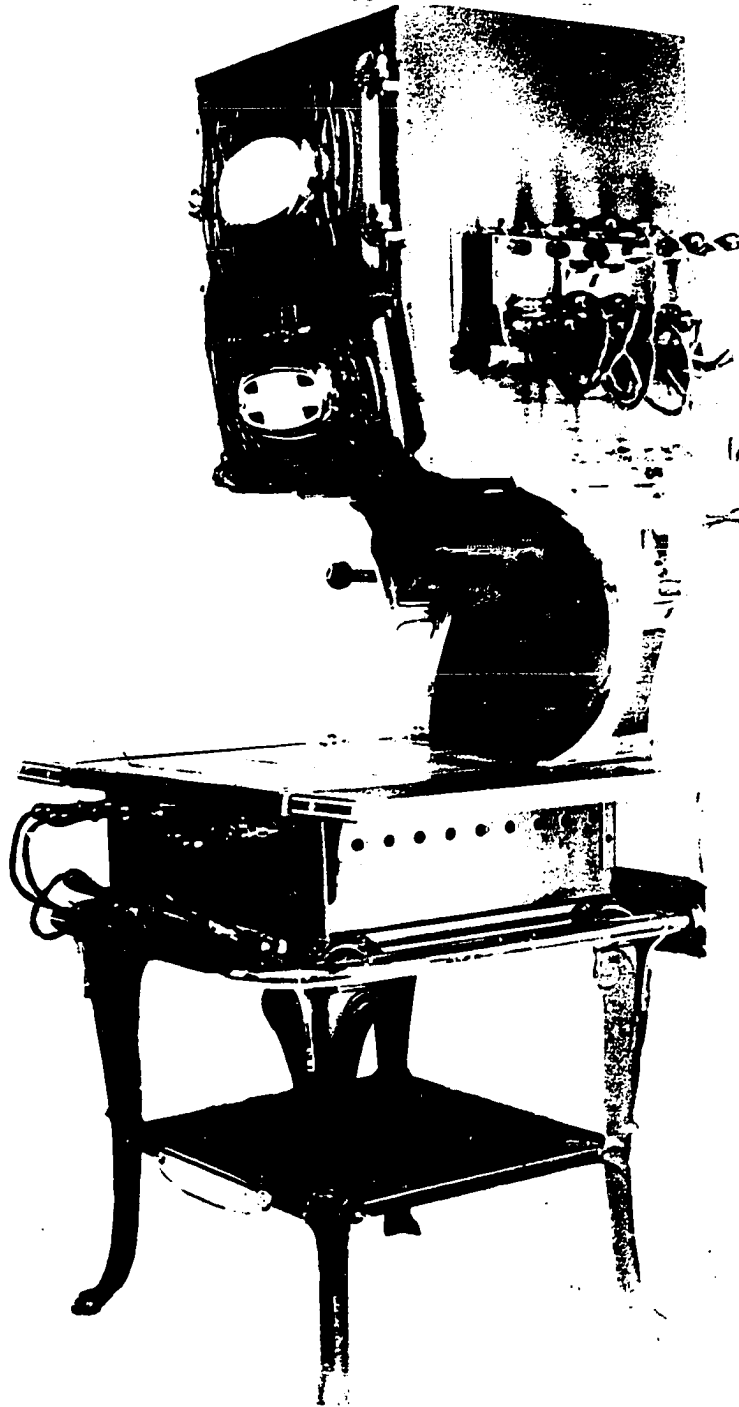


Figure 2 Electric range, George Westinghouse, 1908.

Source: Mary Norwak, Kitchen Antiques (New York: Praeger Publishers, 1975), 24.

Virtually all gas ranges put into production through the 1920s continued to resemble gas range designs because manufacturers had no desire or incentive to do otherwise. Their profits were dependent on consumer acceptance. While innovations could lead to profits, too much innovation usually led to consumer rejection.⁸

In a similar vein, the early models of electric toasters resembled the wire racks used on gas and electric ranges for toasting bread. The traditional rack held the bread at an angle over the flame. Early electrical toasters worked the same way. Bread had been traditionally toasted by cooking one side at a time. Not until 1926, roughly twenty years after the first electric toaster, did a manufacturer completely rethink the problem and invent a pop-up oven-type toaster that cooked both sides at once. The efforts of the early manufacturers were directed toward making a reliable and acceptable electric appliance at a good price, not trying to challenge the existing notions of how those appliances should appear.⁹

In order to assess the historical importance of streamlined household items, an understanding of the accepted notion of what those items should look like in the period before streamlining became common is necessary. As late as the 1920s household appliances were of two decidedly different types: those bearing a resemblance to furniture and those whose straightforward,

utilitarian appearance made them resemble tools.

Though all appliances are tools that help the homemaker perform work, some appliances, such as ranges, refrigerators, and toasters were designed well into the 1920s with decorative features that downplayed their machinelike nature. The aesthetic component of the design was given precedence over the functional component. Although many of these appliances were used exclusively in the kitchen, they were designed to look almost as if they might be used in the parlor.¹⁰ For these appliances, the ideology of domesticity strongly influenced the way they looked. Their ornamental embellishments made them part of the home and all that the home symbolized--a haven from the larger world of commerce in which the dignity and morality of human existence were preserved.¹¹ Thus appliances such as electric ranges and refrigerators were designed with cabriole legs similar to the legs on the chairs in their parlors that recalled the elegance of eighteenth-century aristocratic European furnishings. Electric toasters and waffle irons sported perforated and stamped decorations that recalled Gothic windows and Georgian tableware. (See figure 3.) Even though the kitchen was unquestionably the locus of much productive activity in the home, Americans of the period preferred to accent gentility and domesticity rather than productivity for the outward appearance of many kitchen appliances.

Not every item in the kitchen of the early twentieth

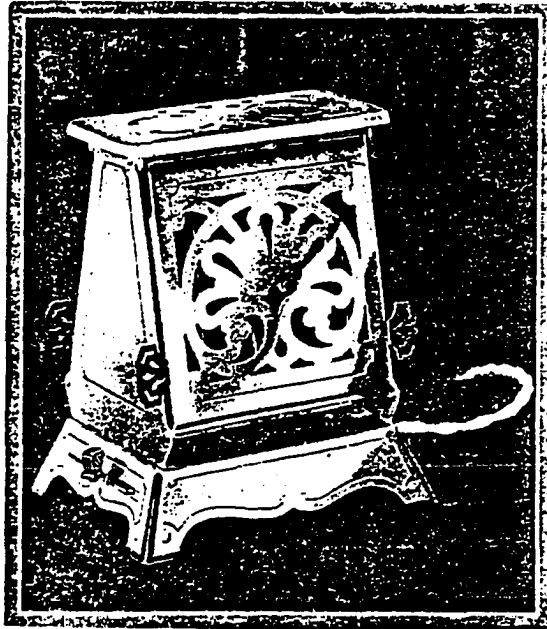


Figure 3 Automatic "Tick-Tock" toaster, Edison Electric Co., 1929.

Source: Edison Electric Appliance Co., Hotpoint Electric Servants (Chicago: Edison Electric Appliance Co., 1929), 35.

century possessed such similarities with the parlor or other public rooms of the house. In fact, most American kitchens before the 1920s were distinguished by their lowly utilitarian appearance compared to the rest of the house. Unlike the public rooms usually located at the front of the house, the kitchen was a space not meant to be seen by visitors (or in the case of well-to-do families, not even the majority of the family itself).

Consequently, it was located at the very back of the house, or sometimes in the basement. The terms "front region" and "back region" as defined by Erving Goffman in The Presentation of Self in Everyday Life are helpful in describing the differences between the kitchen and other areas of the nineteenth-century home.¹²

It was usually a medium to large size room by today's standards, sparsely furnished with a servicable table and some chairs, possibly a cupboard, but probably not too much more. Compared to the remainder of the house, very little thought was given to the furnishing of kitchens. The aesthetic component of most of the furniture and utensils in the room, with the exception of ranges and toasters, was less important than the functional component.

In terms of electrical appliances, mixers and refrigerators illustrate this point. Mixers from the 1920s, for example, were little more than motors mounted on stands. (See figure 4.)

Washing machines and vacuum cleaners likewise were humble designs whose component parts were assembled without much concern for presenting a pleasing and dignified appearance. Both of these

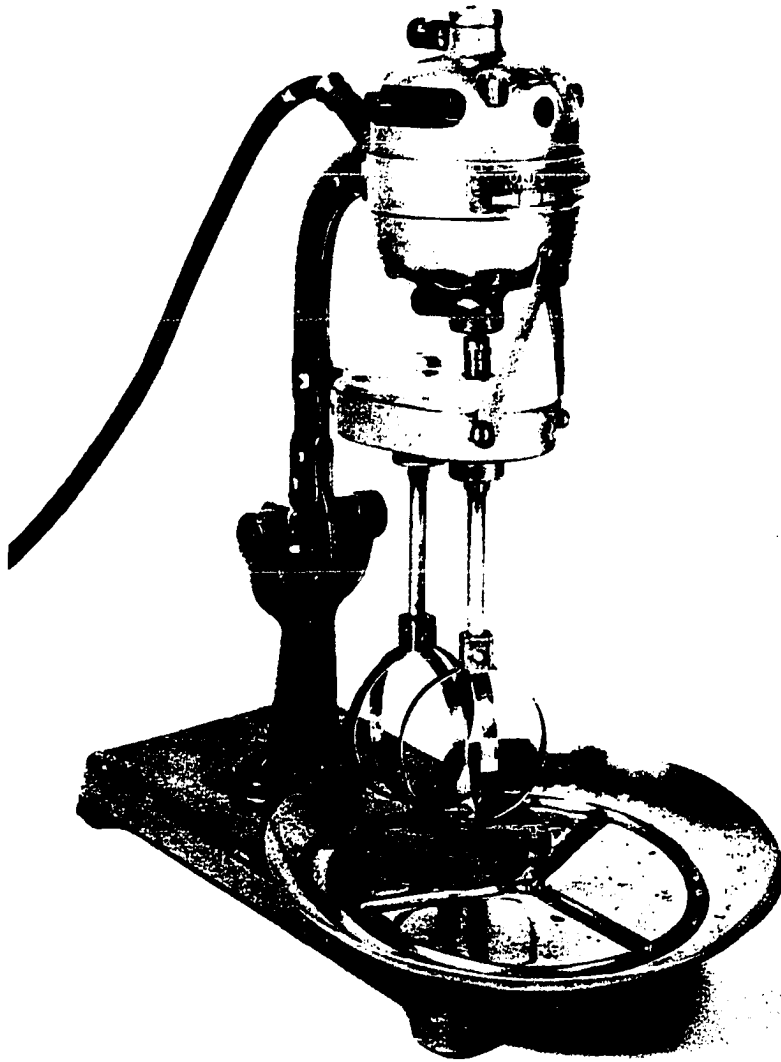


Figure 4 Universal electric mixer, Landers, Frary, Clark Co., 1918.

Source: Adrian Forty, Objects of Desire (New York: Pantheon, 1986), 216.

artifactual "traditions," i.e., furniture and tool,¹³ coexisted in the kitchen because that room was not subject to a great deal of intellectual scrutiny by most Americans before the 1920s.

Chapter 2

DOMESTIC REFORM

Domestic reformers argued for change the way Americans thought about housekeeping at the same time economic and social pressures helped bring about fundamental changes in the way American women managed their homes. Streamlining became a successful design idiom for kitchens and their contents because it seemed compatible with new ideas about housework; at the same time, it reconciled the tool and furniture traditions in a way that seemed appropriate for the modern kitchen.

Beginning in the second half of the nineteenth century, a movement began to reform housekeeping. It gathered momentum slowly, and by the turn of the century housekeepers, architects, and appliance manufacturers began to heed the cry of reform advocates for a more rational and logical system of housekeeping. Lack of efficiency was seen as the chief cause of nervousness, misspent energy, and fatigue in American women. As early as the 1860s, Catherine Beecher and her sister, Harriet Beecher Stowe, wrote about the need to simplify housework.¹⁴ By advocating a small but carefully arranged kitchen with plenty of built-in shelving, Beecher was one of the earliest reformers to stress

organized storage and well-planned kitchen work stations.

Kitchen and household reform were championed for many reasons, and much has been written on the social and economic causes behind the domestic reform movement.¹⁵ Briefly, new theories of psychology and child rearing, germ theory, and nativism brought about by increasing numbers of Eastern European immigrants to American cities, along with the increasing difficulty of affording and keeping servants, helped spur the professionalism of housework. The middle and upper classes became interested in new methods of housekeeping and child rearing to free mothers from depending on outside help. In this way, they could achieve the highest standards of moral upbringing for their families and of efficiency and cleanliness in the household.

Reformers after Catherine Beecher labored hard to rationalize housework and elevate housekeeping to a profession on par with mens' professions. Thetta Franks wrote in 1915:

American men lead the world in capable business administration. Their minds have grasped and successfully solved such gigantic problems that they have elevated the word "business" to a level with the most honored professions. Why should American women not emulate American men? Why should we not be honored as they are, for the intelligent business administrators of our homes, until we are known, not as extravagant spenders, but as efficient organizers and administrators of our households.¹⁶

Numerous books were published on the subject and many universities had established departments of home economics by the beginning of

World War I. "Domestic science" and "home economics," as it came to be known, "claimed to combine the rationality of science with the efficiency of business."¹⁷ While science provided insights into nutrition and germ theory, business offered the model of productivity and efficiency. Both proved to have enormous impact on twentieth-century housekeeping.

The efforts of Frederick Winslow Taylor to rationalize American business were applied to housekeeping by domestic reformers such as Christine Frederick¹⁸ and Mary Pattison.¹⁹ Taylor sought to improve the productivity of workers by dividing tasks among workers and conducting time and motion studies to find the "one best way" to perform a task. He believed that optimum productivity could be achieved by providing the worker with the best possible tools and working environment and instructing him how to most efficiently use the tools. Frederick performed her own time and motion studies to determine the best ways to organize kitchens to reduce unnecessary movements. She also wrote about the advantages of new labor-saving appliances. Through the efforts of Frederick and others to apply Taylorism to housekeeping via books and articles for popular audiences as well as the building trade, kitchens by the 1920s were designed differently. As a response to increased awareness of progressive kitchen design, they were smaller to reduce steps. Pantries became obsolete as storage areas were integrated into the kitchen to keep

utensils and foodstuffs close at hand. The range, refrigerator and sink were linked by a continuous countertop that was easy to clean and functioned as a work surface.

Domestic science reformers also championed the application of scientific advances to the home. The development of the germ theory provided scientific support for the Victorian phobia of dirt and disease. The craze for healthful furnishing at the turn of the century was to have a lasting effect on the appearance of kitchens. Beginning in the 1880s but particularly after the turn of the century, American middle class kitchens and their contents reflected the concern for hygiene. Varnished wood and blackened cast iron were replaced with non-porous, easy-to-clean surfaces such as glazed ceramic tile and vitreous enamel so that dirt and germs would have no place to lurk.

Perhaps the most obvious example of the influence of domestic scientists' preoccupation with hygiene was the overwhelming acceptance of white as the appropriate color for the kitchen by the 1920s. Because white revealed dirt, it became, according to Gwendolyn Wright, "the sign of visible sanitary awareness."²⁰ While a cooking range in the traditional black might have been appropriate earlier in the decade, by the late 1920s only white would do.²¹ Items in the kitchen not only had to be clean; they also had to look clean. Although manufacturers made attempts to boost sales by introducing colored appliances in the mid-1920s and

then later in the mid-1930s, both attempts proved disappointing.²² American homemakers found the sanitary appearance of white to be too compelling to introduce more than touches of color into kitchens until the 1950s.

The effects of the domestic reformers to professionalize housework and infuse it with scientific advances and efficient business methods made the Victorian model of domesticity obsolete for the modern kitchen. Housekeeping, the reformers argued, was indeed work and should be treated as such. Their efforts to make an efficient and scientifically planned workroom out of the kitchen helped encourage people to reconsider the layout and utensils/tools in their kitchens. As kitchen design became a more important concern of home buyers and builders, the hodgepodge coexistence of genteel furniture-like appliances in a utilitarian back region became less common. The transition to the factory/laboratory kitchen was not an instantaneous one. The concern for hygiene that emerged at the turn of the century ushered in the transition. The trend in the 1910s and 1920s toward smaller, better planned kitchens with more expensive and complicated kitchen appliances was a further development. But it was really the advent of streamlining that completed the transition to the factory kitchen by transforming the appearance of the appliances to conform to the ideal of productivity.

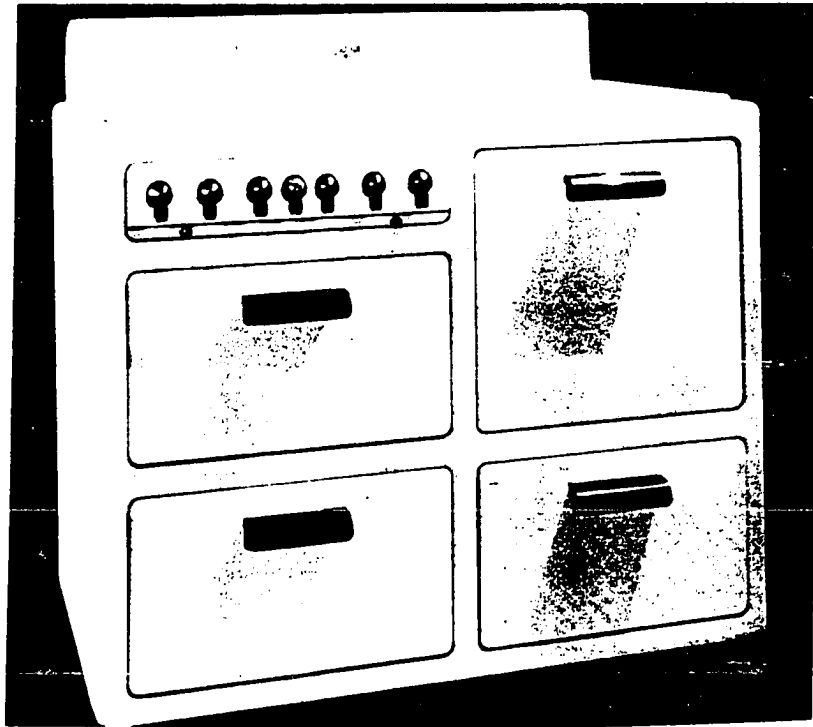


Figure 5 Range, Norman Bel Geddes for Standard Gas Equipment Corporation, 1933.

Source: Jeffery Meikle, Twentieth Century Limited: Industrial Design in America (Philadelphia: Temple University Press, 1979), 101.

In a similar way, streamlined designs successfully challenged and superceded conventional furniture-type designs for other appliance types in the mid- and late 1930s. Before streamlining, toasters of the "flip-flop" type had numerous perforations on their sides that formed decorative designs. By the late 1930s most manufacturers reduced the perforations to the minimum needed for venting and placed them strategically so as not to interrupt the smooth flowing lines of the design, which recalled new streamlined airplanes, trains, and cars instead of traditional furniture. (See figure 6.) Waffle irons similarly lost the cabriole legs and decorative perforations on their bases when streamlined designs simplified the overall silhouette and integrated the cooking unit with the base. Streamlined designs eschewed historical ornament, and in unifying parts with an undulating, smoothly contoured shell made visual connections with the newest and most exciting machines of the day. The efficiency that streamlining supposedly brought to vehicular design and to factory production was conferred on kitchen appliances through streamlined designs.²³ And while the visual connection between a toaster and a car may seem ludicrous today, streamlined appliances shared in the optimistic appeal of the new advances in transportation.²⁴

Streamlined designs also became quite popular for appliances that were part of the tool tradition. The food mixer, for instance, little more than a small motor mounted on a stand in the 1920s, became a sleek appliance that appeared not unlike an

Chapter 3

STREAMLINING

By the 1930s, domestic reform had sufficiently altered the public's perception of housekeeping to make the streamlined designs seem more appealing than traditional designs on two important counts--efficiency and cleanliness. The traditional cabriole legs of ranges looked old-fashioned after Norman Bel Geddes introduced a gas range in 1932 that dispensed with legs and put storage cabinets beneath the oven and burners. (See figure 5.) The design had appeal on several levels. First, the drawers created additional usable space. Second, bringing the front of the range flush to the floor left no space for dirt or dust to collect. Last, by removing the traditional cabriole legs and reorganizing the design on a grid pattern, Bel Geddes removed all association with furniture from previous epochs and visually reinforced the manufacturer's claim that their new model incorporated all the latest advances of home economics. Bel Geddes's design for the Standard Gas Equipment Corporation was well-received, and many electric range manufacturers introduced models of similar design the following year. With some modifications it has remained the dominant design idea for the industry

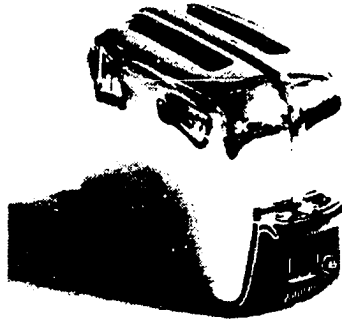


Figure 6 Toastmaster toaster, Waters-Genter Company, 1938.

Source: Jay Doblin, One Hundred Great Product Designs
(New York: Van Nostrand Reinhold, 1970), 54.

until the present day.

In a similar way, streamlined designs successfully challenged and superceded conventional furniture-type designs for other appliance types in the mid- and late 1930s. Before streamlining, toasters of the "flip-flop" type had numerous perforations on their sides that formed decorative designs. By the late 1930s most manufacturers reduced the perforations to the minimum needed for venting and placed them strategically so as not to interrupt the smooth flowing lines of the design, which recalled new streamlined airplanes, trains, and cars instead of traditional furniture. (See figure 6.) Waffle irons similarly lost the cabriole legs and decorative perforations on their bases when streamlined designs simplified the overall silhouette and integrated the cooking unit with the base. Streamlined designs eschewed historical ornament, and in unifying parts with an undulating, smoothly contoured shell made visual connections with the newest and most exciting machines of the day. The efficiency that streamlining supposedly brought to vehicular design and to factory production was conferred on kitchen appliances through streamlined designs.²³ And while the visual connection between a toaster and a car may seem ludicrous today, streamlined appliances shared in the optimistic appeal of the new advances in transportation.²⁴

Streamlined designs also became quite popular for appliances that were part of the tool tradition. The food mixer, for



Figure 7 Mixmaster mixer, Sunbeam Corporation, ca.1938.

Source: Sunbeam Corporation, How to Get the Most Out of Your Sunbeam Mixmaster (Chicago: Sunbeam Corporation, 1938), 1.

instance, little more than a small motor mounted on a stand in the 1920s, became a sleek appliance that appeared not unlike an airplane poised for takeoff. (See figure 7.) Streamlining gave appliances of the tool tradition an enhanced aesthetic component; i.e., it brought them closer to the furniture pole of the tool/furniture scale. In doing so, mixer designs adopted front region conventions; gone was any back region quality to the design. Appliances whose obvious machinelike appearance made them seem out of place in the home were modified by streamlining them to be more "domestic" in appearance. Gone was the "schizophrenic" approach to designing kitchen appliances. As part of the call for efficiency in food preparation, every appliance in the factory/laboratory kitchen had to be carefully designed for the task, or at least appear as if it were. In most cases, streamlining did not appreciably improve the performance of the appliance, but the obviously "styled" exterior implied that the product had been improved in some ambiguous way.

Above all, streamlined designs fell somewhere between furniture and tool traditions. The overt visual references to new designs for transportational machines removed associations with domestic furniture. But despite the pared down qualities and supposedly functional aspects of streamlined kitchen appliances, they never could be mistaken for factory machines.²⁵ First, their carefully controlled appearances made them seem far too precious

and front region for any machine that would be used in a factory. Second, the characteristic sleek shell of the streamlined mode tended to obscure the working mechanism of the appliances by visually denying its complicated parts as well as its functional nature. One of the many interesting contradictions of streamlining is that it simultaneously celebrates and denies machine qualities. In some ways the streamlined designs for the factory-kitchen did not differ so radically from the traditional furniturelike designs they replaced. The ambiguities of streamlining made it appropriate to bridge the gap between the tool and furniture traditions.

Yet while streamlined kitchen appliances seemed new and modern when they were introduced, and as much as they seemed to alter the conception of the home by turning the kitchen into a factory, streamlined appliance designs found wide acceptance precisely because they did not differ significantly from those previously used. For kitchen items, streamlining was in many ways a continuation of existing trends as much as it was a break from them. Generated by concerns for cleanliness, simplification of appliance designs had already become a trend well before the advent of streamlining. Refrigerators illustrate this point; a great deal of simplification had already occurred before the introduction of the first streamlined design. During the mid-twenties enamelled white superceded varnished wood as the most

popular finish. By the late twenties, the multiple doors and elaborate hardware of the icebox had been replaced by a box with a single door as the dominant design idea, having been firmly established by the popularity of the General Electric Monitor Top. Thus Raymond Loewy's supposedly revolutionary 1935 Sears Coldspot, said to be the first streamlined refrigerator design, was actually a modification of a familiar design idea rather than a radically new design concept. Much of the rapidity with which consumers embraced streamlined designs can be explained by the fact that the designs were often but variations on familiar design ideas along lines that the public had already embraced.

To conclude, one of the most significant aspects of streamlining was its popularity. Clearly it satisfied something for millions of Americans who had other choices. I would like to suggest that streamlining's popularity stemmed from its ability to mediate between conflicting ideals during the late 1920s and early 1930s. In the kitchen, it bridged the gap between the home and the workplace at a time when the nature of housekeeping, the conception of the home, and the role of women was changing. Through the promise of a better tomorrow, streamlining helped ease the tension caused by increasing mechanization and made the new machine world seem less forbidding.

Chapter 4

FIVE PRODUCT HISTORIES

In studying the introduction of streamlining in kitchen appliances, I considered five types of appliances: food mixers, refrigerators, ranges, toasters, and waffle irons. By examining an extensive number of trade catalogs and advertisements, the evolution of the various appliance types was analyzed from their introduction until 1940. Appliance products were analyzed both over time as well as across price ranges at individual points in time. This provided information about general market trends and specified those models that introduced design changes.²⁶ At that point, streamlined models dominated the market and were the obvious consumer choice. Following is a brief history of how each of the appliance types evolved.

A. Mixers

Electric rotary food mixers were developed largely after World War I. Essentially they use a small motor to replace hand power needed for tedious and often arduous mixing and beating chores. Of the five appliance types analyzed in this study, the electric mixer is by far the most graphically "labor saving"

device considered. While the other appliance types used electricity to heat or cool foods (and could certainly be termed "labor saving" for the homemaker), only the mixer used a motor to replace simple physical labor.²⁷ Shortly after the turn of the century general utility motors that could perform numerous functions such as grinding, mixing, butter churning and juice extracting through attachments became available. These expensive and complicated devices never became popular. As early as 1918 small electrified beaters with wire stands were marketed. By the mid-1920s mixers occupying a middle ground had established their place in the market. They took the shape of an egg beater, but they had a more powerful motor than early models. Consequently, they were heavier and not intended to be primarily hand held. They came with a more substantial base and were intended to be stationary appliances. Numerous attachments were often available to perform additional tasks other than simple mixing, but aside from juicers large numbers of people probably did not buy them.

A significant trend in the development of mixers has been their visual simplification from complicated and ungainly gadgets to sleekly designed sculptural forms. Before the mid-1920s, the aesthetic component of mixer design was much less important than the functional component. Of the five appliance types considered, the mixer is the only appliance that emerged from the tool tradition; the others belonged to the furniture tradition. One of the

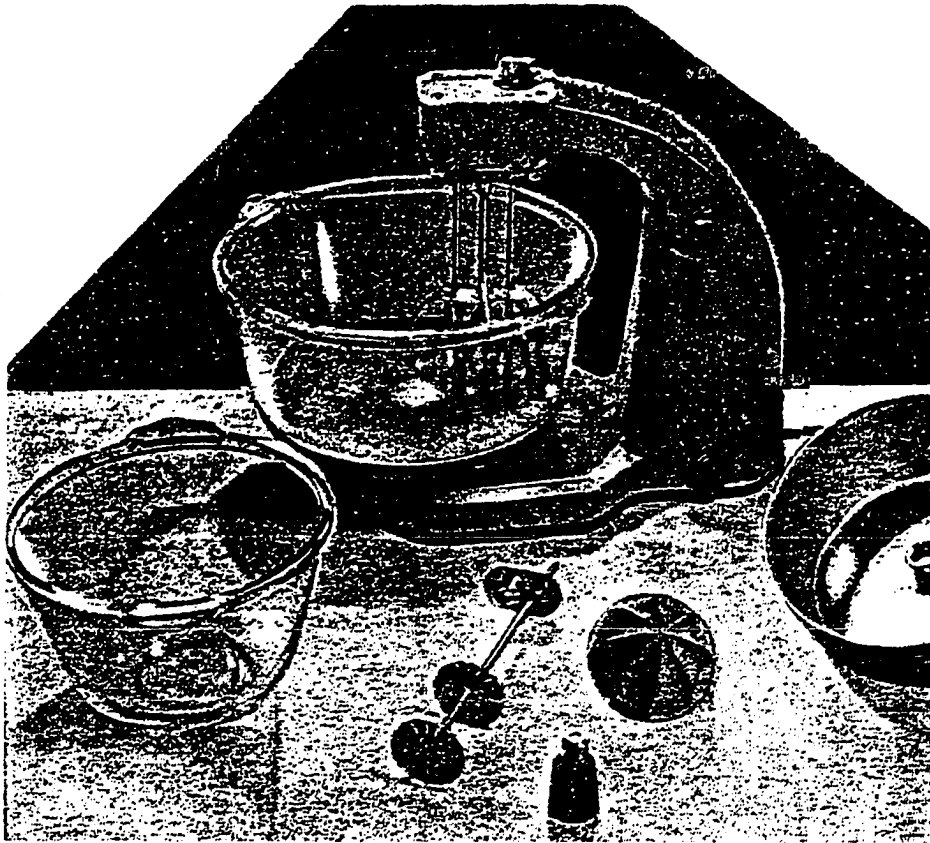


Figure 8 Hotpoint mixer, Lurelle Guild for General Electric Co., 1933.

Source: General Electric Co., General Electric Hotpoint Heating Device Catalogue, 1933-1934 (Bridgeport, Conn.: General Electric Co., 1933), 16.

earliest models encountered, from Landers, Frary & Clark in 1918, recalled industrial machinery with its profusion of complicated parts assembled forthrightly with visible rivets, struts, and screws. (See figure 4.) Although mixers were later to become even more complicated than this model in terms of function, later designs concealed the mechanisms within a simple housing and mounted the motor on a stand that presented a visually unified appearance.

Sunbeam's 1930 stand model concealed the motor in a cylindrical white enamelled metal shell. The base was also white enamel and made much heavier and wider than previous models to appear more compatible with the bulky motor it supported. This became the dominant design idea for mixers in the late 1930s and 1940s.

In 1933 General Electric became the first company to introduce a food mixer designed by one of the new breed of industrial designers. (See figure 8.) Lurelle Guild was hired to redesign the product and especially make it visually more attractive. He produced a sleek and unified design that General Electric marketed by noting its "eye appeal."²⁸ By placing the motor in the base/arm, he was able to avoid the awkward top-heavy appearance of other models and create both visual and physical stability. The pivoting head was designed to appear as a continuous extension of the base. Furthermore, the mixer was

designed to be visually complete with the mixing bowl in place, a consideration not previously addressed.

Although the placement of the motor in the base of the mixer never became common, other manufacturers responded by increasing the aesthetic component of their models. By 1936 even Sears offered models with arched stands and all-white enamelled surfaces. Sunbeam introduced a model the following year which refined the design concept further by incorporating an arched handle that tapered from beginning to end. The arched stand was a teardrop shape in cross-section. This use of tapered and teardrop shapes made obvious references to the streamlined shapes of airplanes, trains and automobiles. Poised on its arched stand, the mixer recalled a modern airplane about to take flight. This motif was carried even one step further by Gilbert's 1938 model whose teardrop-shaped motor made the mixer seem almost to be moving through space. Not content to call it merely "the latest word in streamlined beauty," Gilbert went so far as to claim that it was "the most beautiful electric food mixer ever made."²⁹

While most mixers of the late 1930s and 1940s were not streamlined as severely as the 1938 Gilbert model, their motors were invariably housed in cylindrical shells. Their relative visual simplicity and increased eye appeal helped make a complicated motorized device seem more appropriate for use by the woman of the home.

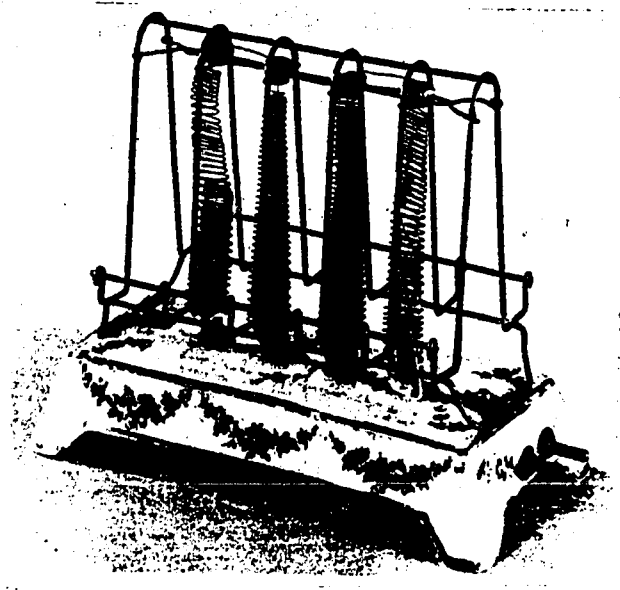


Figure 9 Toaster, General Electric Company, 1908.

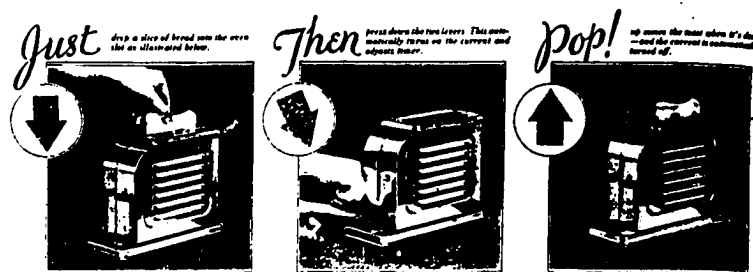
Source: Linda C. Franklin, From Hearth to Cookstove
(Florence, Ala.: House of Collectibles, 1976), 92.

B. Toasters

Toasters were one of the first commercially successful electric kitchen appliances. The earliest models were developed between 1905 and 1908 by General Electric and Westinghouse. In terms of basic functional concepts, they were merely electrified versions of the toasting racks used on the tops of wood, coal, and gas cooking stoves. Bread was toasted on one side at a time by cooking at an angle over the heat source. Despite a wide variety of mechanisms to make the turning of the bread easier, most toasters made before the early 1930s functioned by toasting each side of the bread separately.

From the earliest models marketed, electric toasters were embellished with decoration to make them attractive to the user. A wide variety of sources indicate that toasters were commonly used at the table, especially prior to the 1930s. Images of well-to-do appliance users show toasters at use in formal breakfast/dining rooms. Undoubtedly many Americans did not use their toasters in the dining room because they took breakfast in the kitchen. However, it is important that the models were designed to be acceptable in the more formal rooms. The porcelain base of the 1908 General Electric toaster served to insulate the table from the heating element. (See figure 9.) It was offered with

Now! Automatic toast for breakfast ... *Made like this*



How many times each day do you have to throw out burned slices of toast? You leave the room for a minute, and return to find the bread burned to a crisp. Often it turns before your very eyes. Now you won't even think of this annoying and wasteful method.

The Toastmaster *just toast* makes the kind of toast every one likes. A nice golden brown. Crisp on top. And always sizzling hot. Does it toast *just so*—without watching or turning.

Three automatic operations

First, you drop a slice of bread into the oven slot. Second, you push down

the two levers. This automatic turns on the current and sets the timing device. Third, "Pop" up comes the toast automatically when it's done, and the current is automatically turned off. The toast is made *just so* because both sides are toasted *just so*. There is no guesswork. No danger of the bread burning, whether you watch or not. And because both sides are toasted *just so* in an enclosed oven, all the flavor is *just so* and the toast is so hot when served that the butter melts and disappears in an instant.

A beauty in new or old. Finished in gleaming nickel, the Toastmaster

is an attractive piece for the dining table or server. With it you can make toast at the table the minute you want it.

While the Toastmaster is brand new it has been thoroughly tested. For it is a small brother of the big Toastmaster which has been used for many years by famous Restaurants, Hotels and Sandwich Shops.

**Now at your dealer's—
or order direct**

This is National Toaster Mouth—Your Electric Light Company, department store and electric dealer are now displaying the new Toastmaster. See it. Examine it. Operate it. You'll be won to it at once. In case your dealer cannot supply you, send us a money order for \$12.50. We will ship you a Toastmaster on 60-day trial. Money back if you aren't delighted with it. Waters-Genter Co., 231 N. Second St., Minneapolis, Minn.



THE TOASTMASTER is the most perfect toast maker in the world. It makes toast just the way you like it. It is so simple to use that even a child can operate it. It is so beautiful that it will be a decoration on your breakfast table. It is so reliable that it will last for years. It is so economical that it will save you money. It is so popular that it is the most widely used toast maker in the world.

The TOASTMASTER

Figure 10 Advertisement, Waters-Genter Company, 1927.

Source: Earl Lifshey, The Housewares Story: A History of the American Houseware Industry (Chicago: National Housewares Manufacturing Association, 1973), 256.

painted floral swags that presumably would harmonize with breakfast dishes.

By the mid-1910s, toasters were marketed with perforated sheet metal doors on the sides that helped retain the heat and offered some protection from the heating element. The perforated doors were often designed with traditional patterns and motifs found in furniture and architecture, such as foliate designs and Gothic tracery. In fact, the basic designs of most toasters up until ca. 1930 were not unlike a piece of furniture or a building. The heating unit was supported on a flared base that sometimes sported legs (some models from the 1910s even had ball and claw feet) or furniture-like skirts, like those found on an eighteenth century chest of drawers. Overhanging "cornices" capped off most toaster designs as if they were miniature buildings.

The surface materials also enhanced the appearance of the toaster. Although most toasters were made of sheet steel and wire, they were plated to appear like silver hollowware. Nickel plating was the most common finish before chromium plating superseded it in the early 1930s. Prior to the 1920s, some manufacturers offered their more expensive models with a silver-plated finish.

A major innovation in toaster design was the pop-up mechanism first made commercially successful by the Toastmaster

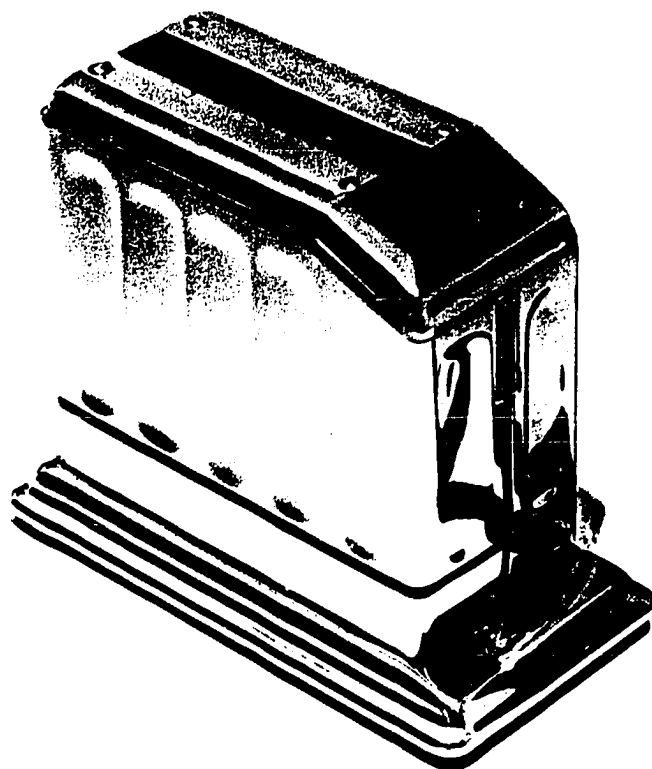


Figure 11 Toastmaster toaster, Waters-Genter Company, 1932.

Source: Exhibition catalog, Streamlining America (Dearborn, Mich.: Henry Ford Museum and Greenfield Village, 1986), 45.

model of 1926.³⁰ (See figure 10.) It eliminated several steps in making toast by means of a timer. Bread was lowered into the body of the toaster, and both sides of the bread were toasted simultaneously. When the appropriate time had elapsed, an ejector popped the toast out of the appliance. This mechanism not only reduced the amount of work involved in cooking toast, but it also virtually ensured a properly cooked piece of toast. Both labor and the risk of failure were reduced. Advertisements for the Toastmaster proudly proclaim the advantages of the new machine. A 1927 advertisement announced "No more burned toast!"³¹ Apparently this was a significant issue with many American homemakers, for sales soared despite the higher cost of a more sophisticated toaster. By 1928, several competing pop-up toasters were on the market; by the mid- to late 1930s traditional flip-flop toasters were outnumbered by automatic toasters.

Just as influential as the Toastmaster's automatic mechanism was its design. From the earliest model, the Toastmasters were more spare in line and mirrorlike in surface treatment than other models. By 1932 Toastmaster had introduced an insulated model with no horizontal vents. (See figure 11.) The overhanging "cornice" was removed. The reflective, smooth, continuous shell was stripped of ornament except for several broad shallow flutes that supposedly hid imperfections in the sheet metal that distorted the reflective surface. The Toastmasters

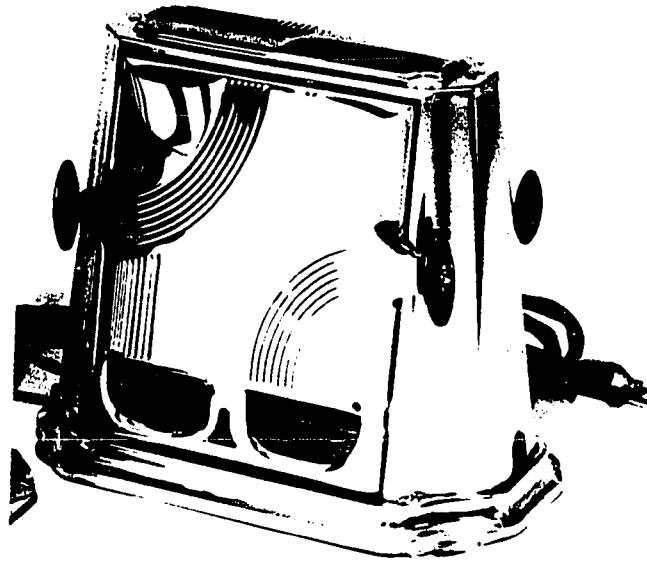


Figure 12 Son-Chief toaster, ca. 1935.

Source: Exhibition catalog, Streamlining America (Dearborn, Mich.: Henry Ford Museum and Greenfield Village, 1986), 45.

were among the first models to stray from the furniturelike model of appliance design. By the mid-1930s other manufacturers had copied the simple "rounded-corner box" design of the Toastmaster for their automatic toasters.

The more inexpensive toasters from the late 1930s remained in the simple flip-flop style. In order to keep up with the competition from the automatic models, the non-automatic ones adopted their simple streamlined appearance. (See figure 12.) The side vents were virtually eliminated, and those that were necessary were placed so as not to interrupt the smooth flowing surface of the housing. Decoration was minimized and tended to be geometric, such as parallel lines.

By the late 1930s, toaster designs seemed to glorify the machine nature of the appliance. The streamlined designs resembled vehicles of the day. Their smooth mirrorlike finishes and absence of decoration made more reference to twentieth-century technology and mass production than to handcrafted pre-industrial objects.

C. Waffle Irons

Never as common as toasters, waffle irons remained somewhat of a luxury for most American homes because of their higher price and the infrequency with which waffles were eaten. Probably a large percentage of waffle irons were purchased as gifts. Like

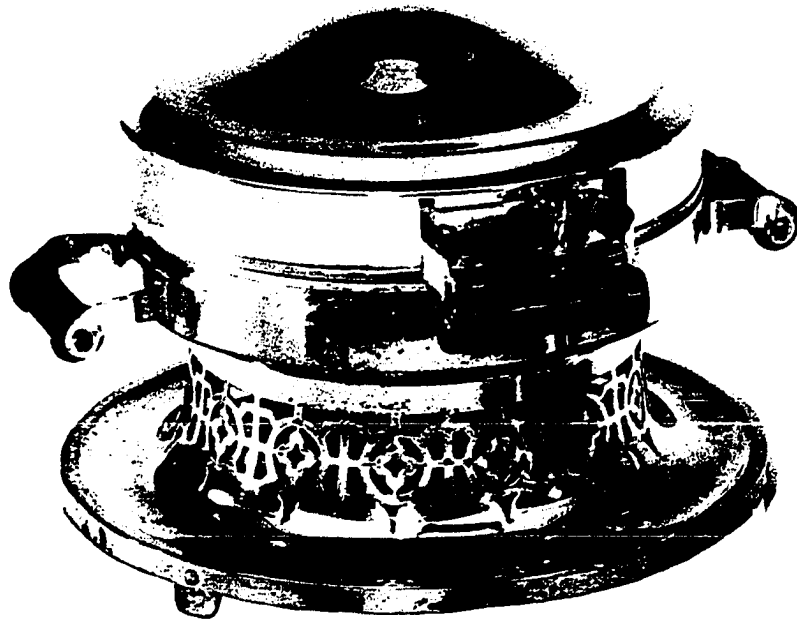


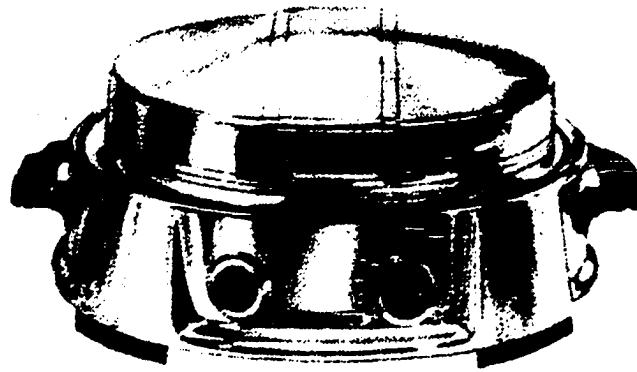
Figure 13 Universal waffle iron, Landers, Frary, Clark Co., ca. 1924.

Source: Exhibition catalog, Streamlining America (Dearborn, Mich.: Henry Ford Museum and Greenfield Village, 1986), 47.

toasters, waffle irons were often shown in period advertising in use at the breakfast/dining room table.³² Regardless of whether not most people used them at the table, waffle irons were designed in the years preceeding the 1930s to look appropriate in the dining room rather than in the kitchen.

The earliest electric waffle irons date from around 1900 and are merely electrified versions of the items used on gas and coal ranges. General Electric's model from ca. 1900 looks virtually identical to the black cast-iron devices used on gas/coal/wood cook stoves excepting that it is raised on insulated feet. Unlike its non-electric prototype, GE's model did not need to be turned to cook both sides. However, the traditional two-part cooking method was echoed in the use of two separate electric plugs--one for each side. Later models used only one plug to bring current to the appliance and divided the current between the heating elements inside the appliance.

By the late 1910s waffle irons were given ornamental designs that made them resemble pieces of furniture. In 1918 Landers, Frary and Clark introduced a nickel-plated rectangular waffle iron with a boxy shape. It was raised on four legs and came with a tray. Not only did the tray presumably catch dripping batter, but it gave the appliance a more formal domestic character. Although these rectangular models were sold into the late 1920s, round waffle makers became the dominant shape by the



Toastmaster

WAFFLE BAKER



TOASTMASTER PRODUCTS—*Automatic Waffle-Baker, \$12.50; 2-slice fully automatic toaster, \$16.00; with choice of Hospitality Trays, \$19.95 or \$23.50; 1-slice fully automatic toaster, \$10.50; Junior toaster, \$7.50*

Figure 14 Wafflemaster waffle iron, Waters-Genter Co., 1930.

Source: Jane H. Celehar, Kitchens and Kitchenware (Lombard, Ill.: Wallace-Homestead Book Co., 1985), 96.

mid-1920s at about the time that significant numbers began being sold. (See figure 13.)

Hotpoint's 1924 model illustrates the popular round design. Two circular waffle grids are supported on a short pedestal that flares at the base to resemble a tray. Heat vents were located in the pedestal and usually arranged in a decorative pattern. The hinged round waffle grids recall its nineteenth-century non-electric forebearer. However, the electric waffle iron before the early 1930s was plated in nickel and decoratively embellished with traditional ornament. Until 1930 few functional differences existed between the various models,³³ and manufacturers distinguished their models primarily through variations in exterior decoration. By the late 1920s a large manufacturer such as Edison Electric might offer the same heating mechanism with housings in three to five different patterns.

In 1930, the McGraw-Electric Co. introduced the first automatic waffle iron under the name "Wafflemaster" using the timer mechanism from their Toastmaster toaster. (See figure 14.) A light indicated when the waffle grids had preheated to the correct temperature. After cooking for the proper amount of time, another light alerted the cook that the waffle was ready. At the same time the electric current was cut off, and the cooking was automatically slowed. This innovation minimized the risk of burned or underdone waffles and reduced the amount of monitoring

in the cooking process. Although the automatic mechanism raised the cost of the appliance an additional third of the regular purchase price, customers were willing to pay for the added convenience, and sales were impressive. Other manufacturers were quick to offer their own automatic models for the higher priced market.

But the Wafflemaster was not only influential for its automatic features. The unornamented and compact housing pointed toward a new direction for the appliance manufacturers. Although its "low built" design was advertised as "requiring minimum table space," it is questionable whether it covered any less than traditional models. However, the visual simplification resulting from the elimination of the pedestal and applied ornamental bands seemed to be evidence of the efficiency that the advertising proclaimed. By the early 1930s several other manufacturers adapted the Wafflemaster look to their own product lines. Manning-Bowman in 1932 eliminated the pedestal while keeping some traditional ornamental touches. In the same year Armstrong offered a model with the smooth mirrorlike surfaces of the Wafflemaster. By the mid-1930s the vast majority of waffle irons were offered in the current streamlined style. Decoration was limited to a few parallel lines and occasional geometric motifs. Designs were compact, having very low pedestals if any at all. Corners were rounded and component parts merged into each other.

The smooth and relatively undecorated shapes of the appliances recalled the streamlined designs of the airplanes and trains of the 1930s. The "modernized simplicity" of Gilbert's 1938 "Penthouse" pattern (designed by Robert Heller) resembled a futuristic transportation vehicle more than a device to cook waffles.³⁴

Unlike the other four appliance types addressed in this paper, only waffle irons continued to have a traditional furniture-type design mode during the streamlining craze of the 1930s. The traditional mode was definitely not as popular as the streamlined style, but a few manufacturers continued to offer domestically-decorated waffle irons through 1940 and after. Porcelier offered an appliance in 1936 that when closed looked like a porcelain "openwork" basket with flowers. Englewood Electric offered a "colonial" model in 1933 that had polka dots and a white enamel background. As these models remained in the catalogs for a number of years, they apparently satisfied the desire of some consumers for an electric waffle iron that would harmonize with the traditional designs and materials used on the breakfast table. By the 1930s the waffle iron was the only appliance of the five types most likely to have been used outside the kitchen. In all probability, this factor accounts for the continuation of the traditional mode.

D. Ranges

As a heat source, electricity promised to be clean, convenient and contained. No ashes or fumes would be produced, and very little heat would be radiated into the room. Expectations for electrical cooking were high, but difficulties in perfecting durable heating elements plagued manufacturers through the first decade of the twentieth century. Experiments to adapt electric heating to food cookery began about 1890, and the earliest electrical "ranges"³⁵ were actually kitchen tables equipped with electrical outlets for free-standing ovens and other small appliances. These were the types of devices exhibited in the first public displays of electric appliances, such as London's 1891 Crystal Palace Electrical Fair³⁶ and the Chicago World's Columbian Exposition in 1893. The first all-electric kitchen was set up at the World's Columbian Exposition; it contained an oven and several other small appliances.³⁷ Although the technical aspects of electric ranges were largely perfected by the late 1910s, the high cost of electricity hampered their adoption by the public. Not until the mid-1930s did rural electric rates become low enough to make the cost of operating an electric range competitive with gas and coal.

The first self-contained ranges integrating both ovens and burners were developed between 1905 and 1909. They were

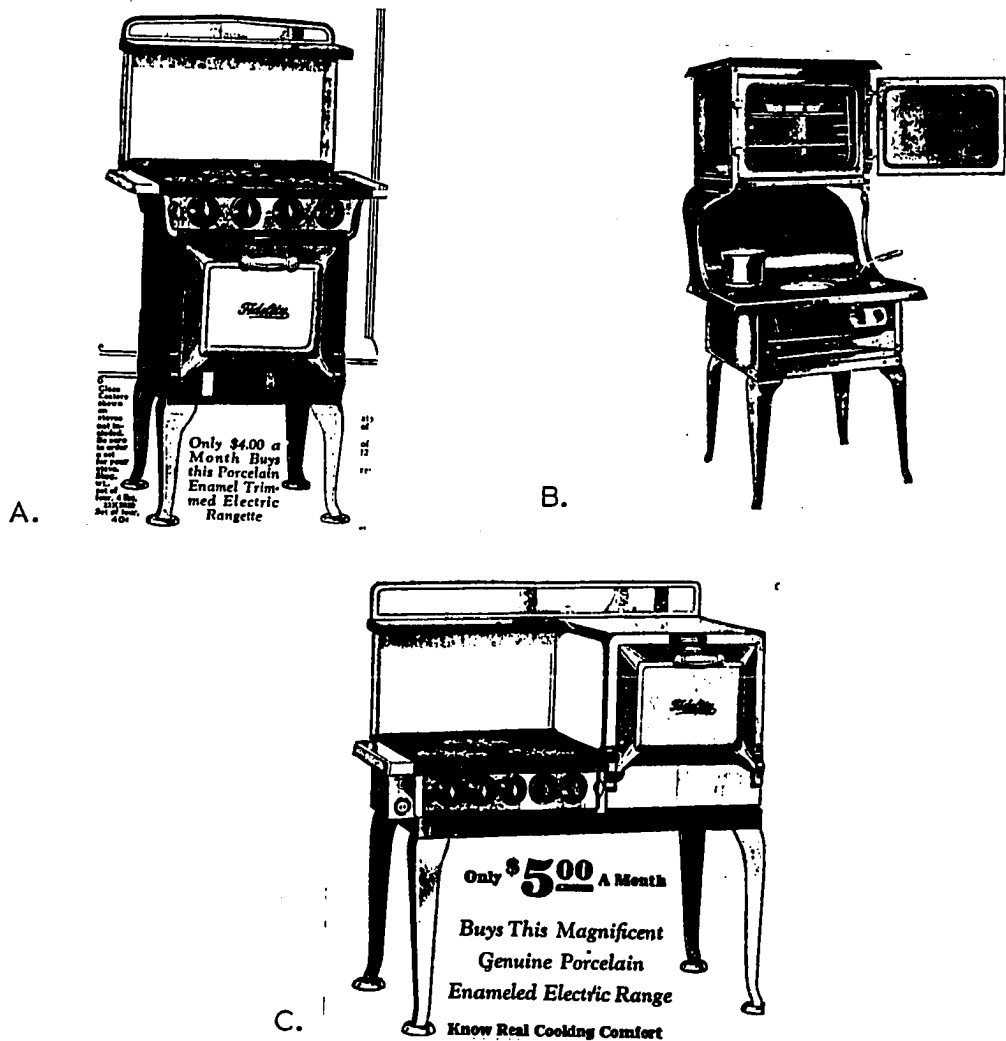


Figure 15 Comparison of three range design types.

A. Oven below burners. Fidelity Electric Rangette, 1927.
Source: Sears, Roebuck & Co. 1927/28 Catalogue (Chicago: Sears, Roebuck & Co., 1927), 940.

B. Oven above burners. General Electric Range, ca. 1916.
Source: E. A. Wilcox, Electric Heating (San Francisco: Technical Publishing Co., 1916), 51.

C. Oven at side of burners. Fidelity Electric Range, 1927.
Source: Sears, Roebuck & Co. 1927/28 Catalogue (Chicago: Sears, Roebuck & Co., 1927), 940.

all-electric versions of ranges that used coal, gas or wood as a fuel source. In fact, the first ranges made by Westinghouse and Hughes Electric Company were gas or coal ranges that had been electrified. (See figure 2.)

Electric range designs before the mid-1930s (and their nineteenth-century wood/coal/gas models) were essentially designed as free-standing pieces of furniture. Cabriole legs, shaped skirts or aprons, ornamental brackets and trim all contributed to making the range appear similar to cupboards or chests that one might have in the home. Three types of design ideas for ranges existed before the 1930s: 1) a small oven with burners above, the whole on legs and not rising above waist height 2) elongated legs supporting the burners at waist height and a shelf below; the oven supported by brackets immediately above the burners at eye height 3) elongated legs supporting the burners at waist height and a shelf below; the oven located to one side of the burners at chest height. (See figure 15.) By the 1920s the third type dominated the market for both gas and electric ranges. Home economists favored this design because the oven was at a convenient height and one did not have to reach over the burners to place an item in the oven. However, it took up considerably more floor space than the other two and proved to be too large for the compact kitchens of the 1920s and 1930s. The first type described became the dominant type after the mid-1930s when streamlined designs

maximized its space efficiency.

Despite numerous technical improvements in the 1910s and 1920s that made electric ranges operate more efficiently, the high cost of electrical current was the biggest obstacle to widespread use in urban areas during the 1920s and much later in rural areas. Compared to tabletop appliances, electric ranges consumed large amounts of electric current. Budget-conscious consumers often found this to outweigh the advantages of electric cooking. The home economist C. W. Piper predicted in 1919:

The use of electricity for cooking will become even more popular as the cost of energy is reduced. The energy rates throughout the country are in general so high that electric cooking is possible only to those who can afford luxuries, and until the rates are reduced for cooking purposes, electrically heated stoves will be barred for the kitchen of the average family.³⁸

However, as the total demand for electricity rose steadily through the period, the unit cost decreased drastically.³⁹ This perhaps more than any other factor led to the widespread use of the electric range.

Electric ranges offered cooks several convenience features that contributed to the mechanization of housework. As early as 1914 electric timers were available on some models so that the oven could be automatically started and stopped. Domestic reformers felt this was an important milestone in the quest to develop the efficient kitchen. Thermostats also made cooking more precise and convenient after they were introduced in the late

1920s. Unlike a thermometer which only passively indicated the temperature of the oven, the thermostat actively maintained the oven at a constant temperature by switching the current on and off. As thermometers began to be calibrated in Fahrenheit degrees by the late 1930s rather than the traditional but imprecise "slow-medium-hot" designations, the cumulative effect of these developments was to transform cooking from a series of educated guesses into a fairly exact process, with the variables of time and temperature clearly distinguished. With fewer subjective judgments to be made, recipes could be more easily written and followed. By the late 1930s cooking was rapidly becoming more akin to a science than an art.

In the context of these developments and the desire for domestic reform that created them, the furniturelike designs of electric ranges began to be challenged. By the early 1920s a trend toward simplification of design had become apparent. Ornamental touches were removed and porcelain enamel surpassed blackened cast iron and nickel as the preferred finish. The similarities to furniture became obvious, but a new design idea did not occur until 1926. With Hotpoint's "Kab-Base" model the range took on the appearance of industrial storage equipment rather than domestic parlor furniture. By placing a sheet metal cabinet under the oven and burners that reached virtually to the floor, Hotpoint boasted "Its very presence reflects a spirit of progress. . . . It

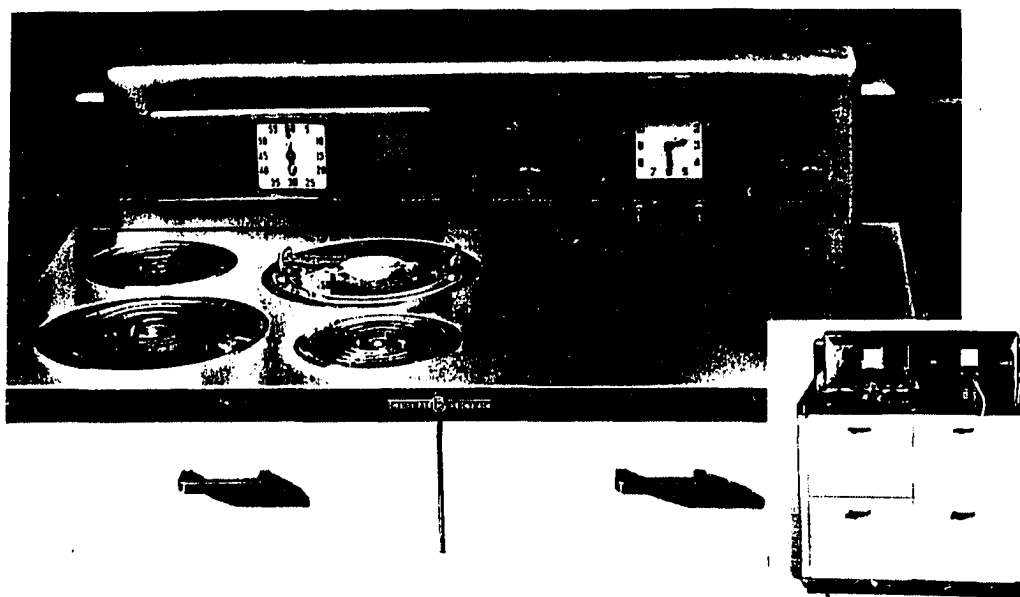


Figure 16 Imperial electric range, General Electric Co., 1933.

Source: The International Nickel Co., "A Letter From Dorothy McGeehan" (New York: The International Nickel Co., ca. 1934), 2.

fills a long-felt need in the modern apartment kitchen where the limited amount of space makes even tiny inches valuable."⁴⁰ Although not a great commercial success, when a similar and more palatable design was introduced eight years later, it revolutionized range design.

Norman Bel Geddes was commissioned by the Standard Gas Equipment Corporation to redesign their line of gas ranges in 1932. (See figure 5.) He enclosed the base as storage compartments and redesigned the facade as a sleek assemblage of standardized units. The design was well-received by the public, who apparently found its simplicity appealing, rather than disturbingly non-domestic. The effect on the entire industry was almost immediately seen. General Electric introduced a model the following year with the same configuration as Bel Geddes's design. Others introduced models that were compromises between new and old ideas. By the late 1930s, most ranges were designed without legs and with storage compartments at their bases.

Allusions to machines and science in range design reached an extreme with General Electric's Imperial model of 1933. (See figure 16.) It appeared to be a laboratory unto itself, with a shiny Monel metal top (an early version of stainless steel) and highly stylized controls they called an "instrument panel."⁴¹ Most electric ranges from the late 1930s were much less blatant in their visual reference to the very same things. White surfaces,

boxy silhouettes and a lack of ornament helped convey the message of cleanliness and efficiency the home economists championed.

E. Refrigerators

The development of a domestic electrically-powered refrigerator in the years immediately preceding World War I ushered in a new era in home food preservation. Electric refrigeration not only offered the consumer a way to preserve foods at consistently colder temperatures than iceboxes, but it also removed the need to constantly replenish ice and empty the drip pan when necessary. In the case of the refrigerator, electrification of the appliance did not save labor (as with the washing machine) as much as it dispensed with the annoying daily maintenance of food preservation. By switching to electrical power, the homemaker no longer depended on an outside company for daily ice delivery and therefore escaped all of the difficulties and complications that such a service entails.⁴²

Electric refrigerators were invented around the turn of the century for commercial use. Domestic applications were developed shortly thereafter, but because of their expense they did not become widely used until prices were greatly reduced during the Great Depression. Electric refrigerators ushered in a new era in home food preservation by providing a way to preserve foods at consistently colder temperatures than iceboxes and

without any of the maintenance and risk of food spoilage involved in the older technology.

Early electric refrigerators were modified iceboxes. The first domestic refrigerator was produced in 1913 by inventor Fred W. Wolf of Chicago. His "Domelre" refrigerator (which stands for domestic electric refrigerator) was a wooden icebox with a condenser mounted on top and an evaporator in the ice compartment. The machine was soon sold to another inventor, Henry P. Joy, who perfected the mechanism and rechristened it "Isco." About four thousand units were produced until the company was sold during World War I.⁴³ Another early model appeared in 1915 by the Guardian Refrigerator Co. It was the first self-contained unit with its mechanical parts concealed behind a panel at the bottom of an icebox of otherwise conventional appearance.

The appearance of the late nineteenth-century icebox was very simple. It was boxy and servicable in design. A usually unadorned wooden frame containing panels formed the body. Several (often three) doors with simple and sturdy hardware opened to interior compartments for ice and food. Although the icebox appeared to be a piece of furniture, it was without question a humble piece of furniture intended to be used in service areas.

Electric refrigerators through the mid-1920s retained the general look of the icebox, due largely to most manufacturers who

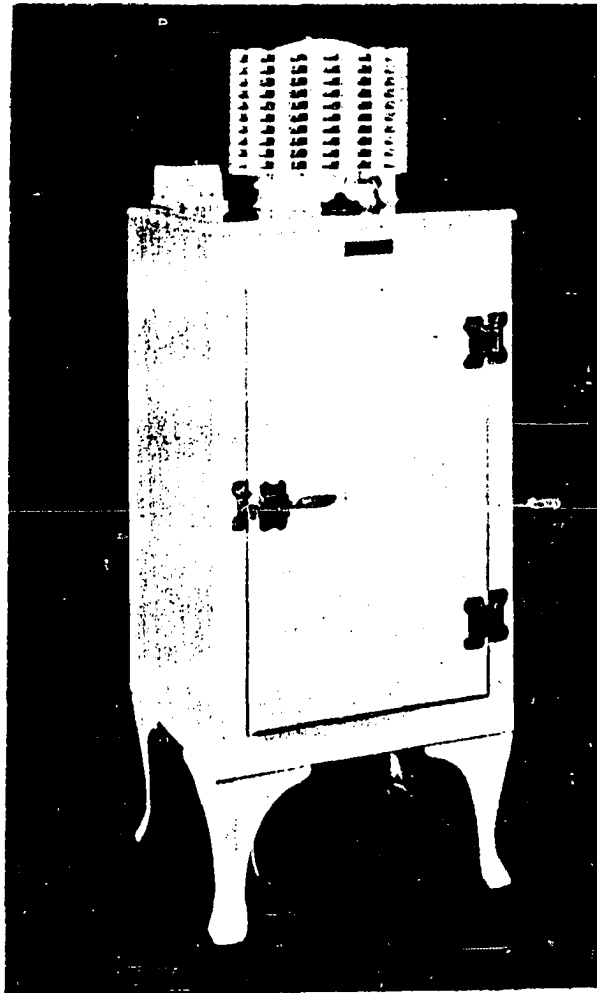


Figure 17 Monitor-top refrigerator, General Electric Company, 1927.

Source: Arthur Pulos, American Design Ethic: A History of Industrial Design to 1940 (Cambridge, Mass.: The MIT Press, 1983), 247.

bought their cases from icebox manufacturers. In the 1920s when electric refrigerator manufacturers began to fabricate their own cases, electric refrigerator designs began to diverge slightly from the late nineteenth-century icebox design while still retaining the same utilitarian appearance. White enameled steel superseded natural wood as the most common exterior finish in response to hygienic concerns. Frigidaire was the first manufacturer to offer an all-steel cabinet, a feature that quickly became an industry standard after its introduction in 1925. The number of doors was reduced to one, or at most, two. The food compartment was frequently located at a more convenient height than the traditional icebox because of the placement of the compressor.⁴⁴ Despite these changes the appearance of electric refrigerators retained the same humble tool-like qualities of the icebox.

One of the most popular refrigerators in the late 1920s was the General Electric "Monitor Top" series, so named for the cylindrical compressor conspicuously mounted on top of the refrigerator. (See figure 17.) The "monitor top" made good mechanical sense; it was technically efficient at dispersing heat up and away from the food compartment. However, the "monitor top" was difficult to clean and visually identified the refrigerator's machine nature. While other manufacturers opted to conceal the machinery behind vented panels, G.E. gave priority to technical efficiency over aesthetic considerations.

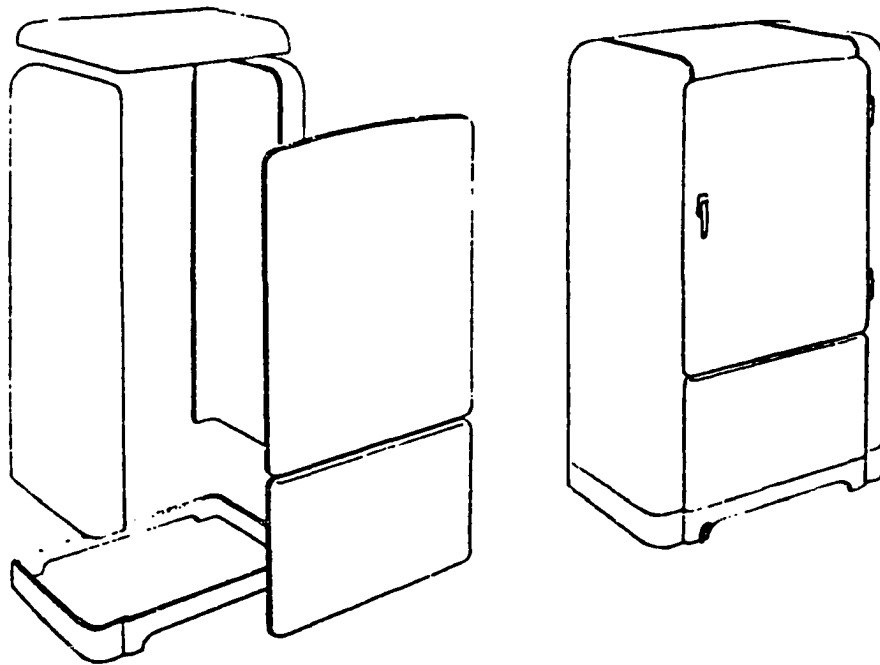


Figure 18 Refrigerator, Lurelle Guild for Norge Company, 1933.

Source: John Heskett, Industrial Design (New York and Toronto: Oxford University Press, 1980), 149.

One disadvantage to the high placement of the condenser and motor was that the food compartment was considerably lower than in other models where the condenser was located on the bottom. In 1927, GE solved the problem in a distinctive and influential way. It raised the refrigerator on cabriole legs like a piece of furniture. Despite the prominent location of its mechanical parts, the designers apparently did not think that the ornamental legs would be incongruous. These ambiguities mirror the changing attitudes of middle-class homeowners toward the appearance of their kitchens.

But if manufacturers felt that consumers wanted their kitchens to be more pleasant and inviting, designing appliances to look like traditional furniture was not the way to achieve this goal. Frigidaire's introduction of refrigerators with fancy cabinets reminiscent of fine lacquered furniture around 1926 must have proven unsuccessful, for the company did not offer these models more than a few years.

By the mid-1930s the direction of refrigerator design became clear as a sleek "machine-inspired" cabinet became popular enough for most manufacturers to adopt. Norge was the first company to capitalize on modern cabinet styling as a selling tool. Its 1933 model, designed by Lurelle Guild, was deliberately designed to look different than a traditional icebox or refrigerator. (See figure 18.) Drawing on some 100,000 suggestions from

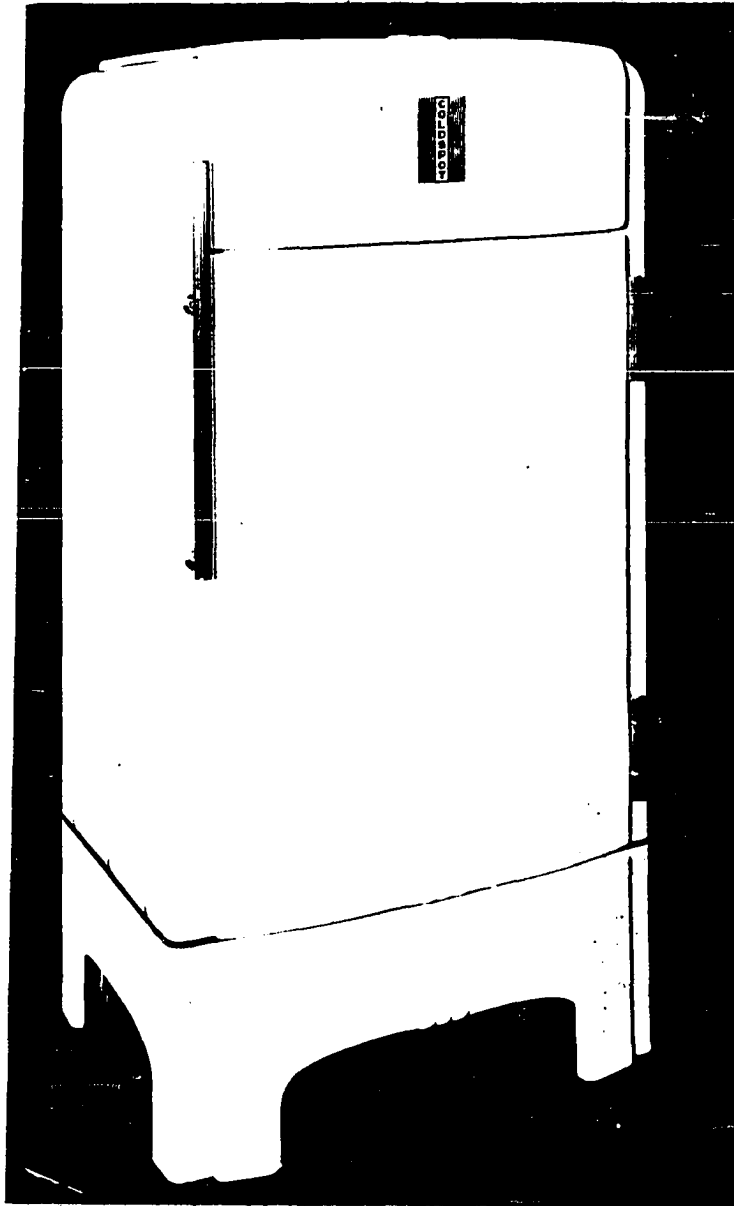


Figure 19 Coldspot refrigerator, Raymond Loewy for Sears, Roebuck & Company, 1935.

Source: Jeffrey Meikle, Twentieth Century Limited: Industrial Design in America (Philadelphia: Temple University Press, 1979), 5.

consumers about refrigerator design for a contest, Lurelle Guild simplified the appearance and developed a modern design that suggested efficiency. The ornamental legs of furniture were transformed into a low and inconspicuous black base that was flush with the floor. The edges of the unit were rounded, and the hardware was greatly reduced in size. The door was flush with the panel that hid the motor/compressor unit, and together they formed the entire front of the appliance in one plane interrupted only by a seam. Norge's president, Howard Blood, announced that the "cabinet exhibited sheer verticals and rounded horizontals of modern simplicity." Sales exceeded the company's expectations, and other manufacturers were quick to redesign their own units.⁴⁵

At General Electric, pressure to redesign the monitor top to conform with current aesthetic and sanitation ideas forced a modification. A sleek cover was designed to hide the mechanical parts. The streamlined monitor top was not made after 1937. By 1934, G.E. offered a refrigerator model with a flat top. They hired the noted industrial designer Henry Dreyfuss to create an up-to-date design with the machinery in the base. Although the edges and corners were sharper than Guild's 1933 Norge model, the two were similar in many ways. The model sold well and remained virtually unchanged until 1939. This design idea has had tremendous impact through the 1970s.

Another significant refrigerator design from the mid-1930s

was the Sears Coldspot. (See figure 19.) Industrial designer Raymond Loewy introduced a new model for Sears in 1934 that integrated the various component parts into a sleek and unified design with a vertical emphasis. Sears advertisements announced that "A world famous designer developed the new streamlined cabinet to conform to modern home decorative ideas," and that " . . . it was out of the ordinary in design . . . years ahead of any other refrigerator in beauty and style."⁴⁶ Coldspot's sales increased dramatically. Sears rose from the tenth largest refrigerator manufacturer to the fourth largest, a gain largely credited to Loewy's design. However, the attractive low price of the unit, as well as Sears' installment plans and heavy advertising, probably contributed significantly to the increased sales.⁴⁷ Many American families purchased their first electric refrigerator in the 1930s when the depression forced sharp price reductions.

By the late 1930s, almost all large refrigerator manufacturers paid considerable attention to the industrial design of their products. Many had their own design departments; e.g., G.E.'s Appearance Design Unit, while others retained well-known industrial designers as consultants. For a few years in the 1930s some manufacturers attempted to change models yearly, much like the automobile industry. But people do not replace their refrigerators as frequently as their cars, nor do they feel the same way about them as possessions that symbolize their

personalities. Yet even though refrigerators did not come to rival cars as symbolic artifacts, refrigerators did move closer to the furniture end of the tool/furniture spectrum. By the 1930s manufacturers were paying considerable attention to the appearance of their refrigerators. Although they were marketed using the concepts of beauty and elegance, traditional standards of beauty that remained in effect for the rest of the house did not apply to the kitchen and its contents. Streamlined designs asserted a modern and stylized beauty while satisfying demands for efficiency and practicality.

ENDNOTES

1. Saturday Evening Post 11 August, 1934, 44-45.
2. The two best histories of housework are Ruth Schwartz Cowan, More Work for Mother: The Ironies of Household Technology from Open Hearth to the Microwave (New York: Basic Books, 1983), and Susan Strasser, Never Done: A History of American Housework (New York: Pantheon Books, 1982).
3. John Patrick Barrett, Electricity at the Columbian Exposition (Chicago: R. R. Donnelly & Sons, 1894), 394-408; Rossiter Johnson, ed., A History of the World's Columbian Exposition, vol. 3 (New York: D. Appleton and Co., 1897-98), 368-395; "World's Fair Notes," Electricity 4:22 (14 June, 1893), 308: "To judge from the crowds found in the Electricity Building and the remarks heard about the park, the electricity display is one of the most attractive features of the Exposition."
4. For more on the early years of electric appliances see Earl Lifshy, The Housewares Story: A History of the American Housewares Industry (Chicago: National Housewares Manufacturers Association, 1973); Electrical Merchandising (50th Anniversary Issue) July 1957; Maude Lancaster, Electric Heating, Cooking, and Cleaning (New York: D. van Nostrand Co., 1914); Siegfried Giedion, Mechanization Takes Command: A Contribution to Anonymous History (New York: Oxford University Press, 1948).
5. For period discussions of the cost of electricity and advice regarding the purchase of electrical appliances see Lancaster, Electric Heating, Cooking and Cleaning; E. A. Wilcox, Electric Heating (San Francisco: Technical Publishing Co., 1916); Georgie Boynton Child, The Efficient Kitchen (New York: Robert M. McBride, 1925); "Electric Cooking and the Load Factor" Electricity 4:22 (14 June, 1893), 300. For pertinent discussions of the electrical industry see Harold I. Sharlin, The Making of the Electrical Age (London and New York: Abelard-Schuman, 1963); Electrical

Merchandising, July 1957; Strasser, Never Done.

6. Arthur Pulos, American Design Ethic: A History of Industrial Design to 1940 (Cambridge, Mass.: The MIT Press, 1983), 247. For example, in analyzing the design of early electrical appliances, Pulos writes:

"Another category of products being manufactured at the time included technology-based appliances, such as electric fans, irons, toasters, and vacuum cleaners, that had no historical precedents but were becoming essential to daily life. It never occurred to their makers that the unique services these things provided deserved original typeforms. Rather, manufacturers sought to mask their identity by adopting traditional forms and details. Despite their artificial elegance, however, early appliances were clearly 'uncomfortable' in their ill-fitting and often inappropriate costumes."

7. Electrical Merchandising, July 1957, 107.

8. The concept of consumer acceptance was well articulated by the industrial designer Raymond Loewy. See Raymond Loewy, Never Leave Well Enough Alone (New York: Simon and Schuster, 1955) for a discussion of what he terms the "MAYA" principle (most advanced yet acceptable).

9. I am indebted to George Kubler, The Shape of Time: Remarks on the History of Things (New Haven: Yale University Press, 1962) for the concept of objects in "series" and different types of "innovation" and "entrances."

10. Some appliances, such as percolators, toasters, and waffle irons could be and often were used on the dining table during meals; others, like refrigerators and ranges, though designed exclusively for the kitchen, are large stationary items with obvious parallels to household furniture.

11. Briefly, the ideology of domesticity was a cultural response to industrialization formulated in the mid-nineteenth century. In this belief system separate spheres of influence for men and women were clearly defined. Men took the role of wage-earner and

provider. They worked outside the home in the supposedly cruel and ruthless world of commerce to support their families, who were shielded from the harsh realities of the outside world. Women, on the other hand, were ascribed the role of protectress of the moral and spiritual values of society. They managed the domestic sphere and used their "positive" influence to create respite from the world of commerce. For more on the cult of domesticity in the nineteenth century, see Harvey Green and Mary E. Perry, The Light of the Home: An Intimate View of the Lives of Women in Victorian America (New York: Pantheon Books, 1983).

12. Erving Goffman, The Presentation of Self in Everyday Life (Garden City, New York: Doubleday & Co., 1959). In particular see chapter 3 "Regions and Region Behavior."

13. Because kitchen appliances are, by definition, tools used in food preparation and storage, I have chosen to adapt the tool/art spectrum described by Kubler in The Shape of Time, 9-11, to a tool/furniture spectrum to discuss the design of kitchen appliances. By using furniture as opposed to art, I acknowledge that all appliances are by definition tools. However, within the category of tools, I wish to distinguish between items where the aesthetic component has a relatively large importance compared to the functional component and other items where the aesthetic component seems almost negligible. In this vein, parlor furniture, which has a very important aesthetic component, and automobile engine parts, where the aesthetic component is decidedly less important than that of the functional, can be thought of as opposing poles in a spectrum.

14. Catherine E. Beecher and Harriet Beecher Stowe, The American Woman's Home (1862; reprint, Hartford: Stowe-Day Foundation, 1975). Catherine Beecher stressed that through efficient management and organization, the homemaker would best be able to raise her family according to Christian principles.

15. For good summaries of the domestic science movement see Strasser, Never Done; Gwendolyn Wright, Moralism and the Model Home: Domestic Architecture and Cultural Conflict in Chicago 1873-1913 (Chicago: University of Chicago Press, 1980); and Dolores Hayden, The Grand Domestic Revolution: history of feminist designs for American homes, neighborhoods, and cities (Cambridge, Mass.: MIT Press, 1981). See also David Handlin, "Efficiency and the American Home," Architectural Association Quarterly 5 (October-December 1973), 50-54. For a good overview of changes in

domestic service as a profession see Daniel E. Sutherland, Americans and Their Servants: Domestic Service in the United States from 1800 to 1920 (Baton Rouge: Louisiana State University Press, 1981). In particular Sutherland explains the increasing "servant problem" that evolved by the late nineteenth and early twentieth centuries by chronicling the decreasing status of domestic service as a profession.

16. Thetta Duay Franks, Efficiency in the Household, 2nd ed. (Garden City, N.Y.: Doubleday, Page, 1915), viii.

17. Strasser, Never Done, 7. For a discussion of domestic science and higher education see Stella V. Remiasz, "The History of the School of Domestic Arts and Science of Chicago from 1901-1944" (Master's thesis, Chicago State University, 1976).

18. Christine Frederick, Household Engineering: Scientific Management in the Home (Chicago: New School of Home Economics, 1915); Frederick, The New Housekeeping: Efficiency Studies in Home Management (New York: Doubleday, 1912).

19. Mary Pattison, The Principles of Domestic Engineering (New York: Trow Press, 1915); Pattison, The Business of Home Management (New York: Robert M. McBride & Co., 1918).

20. Wright, Moralism and the Model Home, 120.

21. Manufacturers altered the standard "black Japan" finish by offering white enamel doors and back splashes around 1920. By 1926 several companies offered ranges in an all-white finish. After 1930 only the least expensive models were available in black.

22. The lack of industry standards for colors undoubtedly contributed to the problem. See Lifshy, Housewares Story, 137-47.

23. One design for toasters, although it never became very popular probably due to its cost, explicitly referred to factories. It incorporated a conveyor belt in its design. Toast passed through the housing on the conveyor belt and was toasted by heating elements.

24. See Jeffrey Meikle, Twentieth Century Limited: Industrial Design in America (Philadelphia: Temple University Press, 1979); Martin Greif, Depression Modern: The Thirties Style in America (New York: Universe Books, 1975); Richard Guy Wilson, Dianne H. Pilgrim, and Dickran Tashjian, The Machine Age in America (New York: The Brooklyn Museum in association with Harry Abrams, 1986).

25. Factory machinery is different from automobiles, trains, and airplanes not only in that the former is not transportational and concerned with aerodynamics and wind resistance, but also has virtually no consumer angle. Each of the latter rely for commercial viability on use and acceptance by the public.

26. The trade catalog collections at the following institutions are rich in pertinent materials: Hagley Museum and Library, Greenville, Delaware; Museum of Science and Industry, Chicago, Illinois; Chicago Historical Society, Chicago, Illinois.

27. Other household appliances that were not used exclusively in the kitchen, such as the vacuum cleaner and the washing machine, did dramatically reduce labor. In More Work for Mother Cowen brilliantly addresses the issues of "labor-saving" devices and the ironic fact that in some cases they did not reduce the time spent on housework. The use of the appliances often contributed to the raising of standards of cleanliness, and so floor cleaning and clothes washing was done with greater frequency.

28. Trade catalog, "General Electric Hotpoint Heating Device Catalog, 1933-34" (Bridgeport, Conn.: General Electric Co., 1933), 16. "Eye appeal" was a term often used in the design and advertising trades in the 1930s to indicate a large aesthetic component in a design.

29. Trade catalog, "Presenting the New Gilbert Kitchen Kit Electric Food Mixer: 'A Major Achievement of Design and Engineering' " (New Haven, Conn.: The A. C. Gilbert Co., 1938).

30. The Toastmaster model IB2 was introduced by the Waters-Genter Company, which was acquired in the same year by the McGraw Electric Company.

31. Saturday Evening Post, 26 November, 1927, 129.
32. A Westinghouse advertisement from 1921 proclaimed "It's good-looking enough to adorn anybody's table." Saturday Evening Post, 10 September, 1921, 52.
33. A few manufacturers introduced heat gauges to indicate the relative temperature of the grids by the late 1920s.
34. Trade catalog (A. C. Gilbert Co., New Haven, Conn.: 1938).
35. For the purposes of this study the word "range" will be used to apply to a cooking device with both surface heating units, i.e., "burners" and a heated chamber for baking, i.e., "oven." The word was used in pre-electric contexts to imply that the cooking tool had a wide "range" of functions. "Stove" is a word sometimes used interchangeably with "range." By the late nineteenth century the former usually implied a small tabletop heating device, and the latter implied a large free standing device. Consequently, it is important to differentiate between the two words.
36. Giedion, Mechanization Takes Command, 542.
37. Unfortunately before the end of the Exposition, disaster struck and several of the appliances "blew up." Electrical Merchandising, 106.
38. C. W. Piper, "Electric Ranges," Purdue University. Publications of the Engineering Departments 3 (March 1919), 7.
39. Although books and articles by domestic references before 1920 frequently commented that electricity was too costly to be of great service to the homemaker in cooking, by the late 1920s this is much less frequently asserted. See Strasser, Never Done, Chapter 4, "Flick of a Switch," for a good summary of statistics about electrical consumption.
40. Edison Electrical Appliance Co., "Hotpoint Electric Ranges, Hotplates and Waterheaters" (Chicago: Edison Electric Appliance Co., 1926). The range had short legs that were not cabriole, but

rather simple tapered sheet metal ones that recall industrial non-domestic prototypes.

41. The International Nickel Co. Inc., "A Letter from Dorothy McGeehan" (New York: International Nickel Co., 1934).

42. This was one of the many small changes during the period that together had the effect of isolating the homemaker from other people.

43. Electrical Merchandising, July 1957, 116-117.

44. Ibid., 216.

45. Meikle, Twentieth Century Limited, 76.

46. Sears, Roebuck & Co. 1935 Catalogue, (Chicago: Sears, Roebuck, & Co., 1935), 577.

47. Meikle, Twentieth Century Limited, 96.

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