Kit Kat Club
Columbus, OH

Was Kilroy Here?

Philip J. Schneider
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It has been called "The greatest generation." More than 16 million Americans served our country in World War II, 400,000 of who never came home. We owe a great debt of gratitude to these and all courageous soldiers without whose sacrifice we would not have the freedom that we enjoy today.

During World War II, the saying "Kilroy was here!" began to appear as graffiti both at home and abroad. The saying was often accompanies by a cartoon with two hands, a nose and the top of a head drawn above a line as a cartoon – as if peeking over a wall. I am sure most of you have seen it.

The origins of this popular cultural expression are unknown, and the same doodle appears in other cultures, including the United Kingdom, where this character is known as "Chad" and Chile, where the graphic is known as "sapo," which means "toad." Those looking for an obscure topic for a Kit Kat essay could actually write one on this topic, believe it or not! In addition to the speculation about the origins of this cartoon in the other cultures in which this image has evolved, there are many theories about the origins of both the expression and drawing in our own country.

One theory identifies James J. Kilroy who was an American shipyard inspector as the originator. He worked at the Bethlehem Steel Shipyard in Quincy, Massachusetts during World War II. He claimed to have used the phrase to mark rivets that he had checked. When sealed areas were opened for maintenance, soldiers around the world found this name. Because of the ubiquitous nature of his name and the many soldiers who came across it, it became a symbol of American omnipresence.

Before I digress too far on Kilroy, as noted this is a topic for another essay. The topic of this essay is related to Kilroy coming home. More to the point, where was Kilroy planning to live. Because of the war and the 12-year depression that preceded it, very few homes had been built since 1929. This meant a severe housing shortage for 12 million soldiers returning from World War II at a 12,000 per month clip. The federal government quickly passed legislation to ban construction that was considered non-essential to divert materials and labor to the urgent need for new housing.

After the war, the watchwords were "science" and "technology." Buoyed by victory in the war, there was also a sense of confidence and an obligation to our returning soldiers. The combination of the urgent need for housing and the interest in applying science and technology resulted in creative thinking about new and innovative solutions to the

impending housing crisis. One of the creative concepts that emerged was application of a model that had been so successful in the automobile industry: mass production supported by a dealer network to sell the homes locally to individual consumers.

The man behind this concept was Carl Strandlund and the business that he developed around this concept was the Lustron Corporation. Strandlund's concept was to manufacture porcelain-enameled steel components sold directly to consumers through an automobile-style dealer network that would be delivered and assembled on the home site. To do this, a large industrial factory would be needed to process, paint and stamp out the steel components of the home. Strandlund first asked the War Assets Administration for the vast, 6,500,000 square foot Dodge-Chrysler plant in Chicago. Much to his dismay, it had already promised it to another enterprising man – none other than Preston Tucker with whom comparisons to Carl Strandlund are difficult to avoid. A second choice was the Curtiss-Wright wartime aircraft plant in Columbus, Ohio. This became the site of the Lustron Corporation factory. When it opened in 1948, the new factory assembly line was some 9 miles long, had 22 miles of conveyor belts and approximately 3,000 employees. The Lustron plant consumed more power than the rest of the entire city of Columbus. The first house came off the assembly line in March and at peak production 26 units were produced each day. This was far short of the 50 needed to break even, and the 100 per day envisioned by Strandlund. This location is still in existence today at 4200 East Fifth Avenue adjacent to Port Columbus International Airport and is occupied by Designer Shoe Warehouse (DSW).

Carl Strandlund was truly a "self made man" considered to be both an inventor and entrepreneur. He was born in 1899 in Sweden and had educated himself as an engineer though a correspondence school. He was a self-made industrialist like his fellow Scandinavian, William S. Knudsen of General Motors. He held more than 150 farm implement patents through his work at the Minneapolis-Moline tractor company. Some of his contributions as an engineer and industrialist were to put rubber wheels on tractors, develop a light weight combine, invent a wallpaper-removing machine, and to play a role in the development of the air conditioning systems used in movie theatres. Strandlund was also a sports enthusiast and gambler who owned race horses and even offered pointers to the University of Minnesota football coach on winning strategies after studying the team. He was vice president and general manager of the Chicago Vitreous Enamel Products Company where he developed a new process to make armor plates for tanks that reduced processing time from 14 hours to eight seconds.

Between 1945 and 1953 – the life of the Lustron Corporation – just under 2500 of these "homes of the future" were sold and built. There were 24 of these homes built in the central Ohio area, 22 of which are still standing according to the "Directory of Known Lustron Homes" in Thomas Fetter's book, *The Lustron Home*. The time seemed to be right, but the concept failed. What happened?

If you have seen a Lustron Home, you might ask "who would want to live in a porcelain-enameled steel house?" The fact that that the interior was porcelain-enameled steel too might reinforce this opinion. One current Lustron owner jokes about "Living in a

Lunchbox." Those biases must not have been present 60 years ago when the Federal government was persuaded to invest $37.5 million in the Lustron Corporation during five short year period. Despite this massive infusion of Federal loans, and despite much fanfare, publicity and demand for the homes, the Lustron Corporation declared bankruptcy in 1953.

Carl Strandlund did not start out building houses. He originally had a plan to obtain enough steel to build steel-paneled gas stations for Standard Oil, and other corporate clients. You might remember some of the older "filling stations" that had steel-paneled buildings and the original White Castle buildings that were also made from white porcelain steel. Because of wartime restrictions, he was not able to obtain the steel needed to continue this business plan.

Given the circumstances, after the war, Strandlund turned his attention to demonstrating that houses could be build quickly, efficiently and economically with steel panels. He hired two architects from Chicago – Roy Burton Blass and Morris H. Beckman who designed a bungalow-styled all-steel home. A yellow and blue pilot house (the colors of the Swedish flag) was built on a lot in Hinsdale, IL – a suburb of Chicago. The entire structure consisted of a steel frame, interior and exterior walls, roof trusses, and roof tiles. The exposed steel inside and outside of the home had a porcelain-enameled finish.

The original design called the Westchester was a house that measured 31 by 35 feet and contained a living room, dinette with a built-in china cabinet that formed a room divider, kitchen, master bedroom, guest or children's bedroom, bathroom, and a utility room. There were four exterior color options including Desert Tan, Maize Yellow, Surf Blue, and Dove Gray. There were two interior color options – beige or gray. The home was a single story "ranch" style that could be assembled on a concrete slab in several days, although a limited number were built over basements – perhaps because of the need to support an 11-ton structure. Altogether, there was 1021 square feet of living space for the two-bedroom model and 1150 for a three-bedroom version. Two smaller and less expensive models called the Newport were later produced that had between 800 and 900 square feet of living space. About twenty percent of the total interior space consisted of "built ins." For example, the master bedroom had a built-in vanity with large drawers and additional storage space above. The bedrooms had sliding "pocket" doors to eliminate the space needed for door swing. The dining room had a built-in buffet and pass through to the kitchen. The kitchen featured a built-in Thor washing machine called the "Automagic" located under the sink. This washing machine could also serve as a dishwasher with the installation of a special rack (!). A utility room next to the kitchen served as a location for a hot-water heater and the furnace. The furnace was an oil-fired hot air device mounted on the ceiling that heated the metal ceiling tiles, which in turn heated the entire house. The estimated cost of the Lustron home was expected to be less than $5,000 excluding the cost of the lot and assembly.

The Lustron marketing material listed the following advantages of a Lustron Home:

- Low upkeep: No painting or redecorating – just use soap and water to keep it clean.
- Radiant panel heating: The latest of heating systems maintains constant temperature throughout the home. The absence of air currents carrying dust and soot makes it easier to keep the house clean
- Picture frame windows: Large picture windows in bedrooms, living room, and dining room provide excellent views and good lighting.
- One-floor plan: The convenience of one-floor living – no stairs to climb. With the combination dishwasher-clothes washer-sink, furnace, and ample storage space on the first floor, you do not need a basement.
- Build-in features: Every inch of space is utilized. Built in dishwasher-clothes washer-sink, bookcase and china cabinets, seven large closets, vanity in master bedroom, sliding doors, overhead storage cabinets, kitchen ventilation fan and many other features are included.

They were also considered to be three times stronger than a traditional "stick built" home, rodent proof, fireproof, lightening proof, and rustproof.

To build such a home, significant resources were needed to equip the factory with the machinery to process the steel and to manufacture the components, particularly the porcelain-enameled steel panels. To make one house, more than 100 pieces had to be enameled and more that 200 had a different shape or color. Each house had 7,000 square feet of porcelain-enameled surface. Strandlund turned to the Federal government and an agency called the Reconstruction Finance Corporation (RFC). This agency was founded in 1932 to jump-start financial recovery after the Great Depression, and was still in existence in 1947, when funding was sought to capitalize the Lustron Corporation. The RFC had $3 billion at the end of the war and looking for people to whom this money could be loaned. President Truman recognized the problem of providing housing to the veterans that were returning and directed the RFC to make loans to anyone who had viable plans to address this problem. His goal was to create an infrastructure to build 1.2 million homes and wanted resources directed to housing projects. On June 30, 1947 the RFC board unanimously approved a loan for $15.5 million to start the Lustron Corporation. The RFC also approved a $428,000 annual lease on half of the 1.2 million square foot Curtiss-Wright plant.

Retooling the former aircraft factory took 19 months and the Lustron Corporation required six more loans from the RFC totaling $37.5 million. In the mean time, a backlog of nearly 6,000 orders for Lustron Homes had been generated by mid-January 1948 by 30 enthusiastic sales people. Full production of 100 homes per day was anticipated by the end of 1948. Early in this year, RFC officials began to ask hard questions of Carl Strandlund and the entire Lustron venture. There were a series of congressional hearings that created second thoughts about the soundness of the loans given to capitalize the Lustron Corporation.

The first Lustron Home was not made at the Columbus plant, but from parts that were subcontracted to other manufacturers. The components were shipped in 250 crates on

three 35-foot trailers to Manhattan (New York!) in April 1948. The first model home was erected on the northeast corner of 52nd street and the Avenues of the Americas (6th Ave.) near the famous "21" restaurant. Lines of people three and four abreast around the block waited to see this model. In the ten days following the opening on April 19, 1948, more than 40,000 people toured the model home. Several other sub-contracted exhibit models were produced for other cities, including Chicago, Washington D.C., Detroit, St Louis, Indianapolis, Milwaukee and other cities around the country. A model in Washington D.C. was located in the Foggy Bottom area and was seen by many Congressmen. Of note to fellow Wisconsin Badger fans was that Elroy "Crazy Legs" Hirsh spent most of an afternoon recording the opinions of visitors of the model Lustron Home in Milwaukee for his radio program in Madison, Wisconsin. Visitors commented on how quiet it was inside – surprising since the home was made of metal. Consumer reports rated the Lustron Home a "best buy." More than 400,000 inquiries were received after a series of advertisements in major publications, including *Life* magazine.

The first production Lustron house for public sale left the Columbus factory and was shipped to a western suburb of St Louis. The actual production of houses for sale was much later than expected with a significant lag after the end of the war when houses were needed. This resulted in the emergence of alternative approaches to the housing shortage. Magazine and book publishers began to offer plans and building manuals and advice to an eager public who wanted to build houses. A company called General Panel took over a Lockheed Aircraft plant and in an arrangement with the Celotex Corporation, which made prefabricated sandwich panel boards during the war began to market them for building houses. Carl Koch, a Boston architect, developed a prefabricated unit designed to unfold on site called the Acorn House. William Levitt used more traditional methods to build three large subdivisions in the New York area, the first of which was called Levittown on Long Island. Conventional builders erected some two million houses and apartment nationwide between 1945 and 1948 while Lustron was establishing the Columbus factory and tinkering with production problems. Lustron missed the peak demand of the housing boom following the end of the war.

Homes were sold through a franchise-based distribution system similar to the automobile industry. Dealers had to have sufficient capital to buy vacant lots, pour concrete, run utilities to the site, and purchase the home from the Lustron Corporation before it was sold to a customer. Obviously, this placed a great burden on the dealer to bears significant costs until the home was sold. It was estimated that dealers needed between $50,000 and $100,000 to get started. Meanwhile, the Federal Housing Administration had slowed down the approval of mortgages hampering the quick sale of homes.

Despite this, between 1946 and 1948 orders for 20,000 homes were received through the nationwide dealership network. Only 2,498 of these orders were filled before the Lustron Corporation declared bankruptcy in 1953.

Shipping Lustron Homes to the site of assembly was a potentially costly aspect of the concept. The 3,300 components of the house weighed 35,000 pounds. Engineers determined that all of the components could fit on one 35-foot tandem trailer. The trailer

could be designed so that the components would be taken off in the order in which each was needed for assembly. The nuts and bolts were stored in a secure box mounted on the floor of the trailer. The wall framework and roof trusses supported the rest of the components of the home. It was said to take seven men 72 hours to build a Lustron Home using only screwdrivers and socket wrenches. The trailer was designed so that it could be placed on a railroad flatcar to ship the homes over longer distances. Unfortunately, none of the seven railroad companies were willing to do this because of contracts to transport lumber. The possibility of shipping the components on empty oil barges that had returned to Ohio from Texas was also explored, but there was not sufficient volume to make this work. In the end 800 trailers were built by the Fruehauf Trailer Company at a cost of $4.5 million.

The cost of Lustron Homes rose from the original estimate of less than $5,000 to $7,000 by the time production started to almost $11,000 in 1950. At this time, a wood frame house cost about $8,000 to build. In spite of this cost disadvantage, there was still strong consumer interest in Lustron homes because of their innovativeness, quality, and low maintenance. Unfortunately, even those potential buyers were put off by delays in production that resulted in long delivery delays.

In addition to consumers raising questions about the financial status and future of the Lustron Corporation, so was Congress. Some think that the turning of public opinion was fueled by jealous trade unions and builder, and other industries that were competing for scarce steel. These groups might have felt their livelihoods and industries were being threatened because of the efficiency of assembling a Lustron Home compared to a conventional one and the use of large quantities of steel. Valuable time had to be devoted to fending off these lobbying efforts that detracted from the time available for day-to-day operations.

Part of the credibility problem might also have come from the fact that the total investment from the Lustron Corporation was $36,000 at the time that loans from the Federal government were being requested. This represented seven one-hundredth of the amount being requested as a loan, meaning that if the venture proved unsuccessful the majority of losses would be incurred by the government. At an earlier point in setting up the Lustron Corporation, Strandlund and his wife invested $500 each and received 86,000 Class B stock and voting control over the company. He justified this by stating “I contributed the knowledge of the development. I contributed quite a bit of the engineering. I put the thing together.”

After the company declared bankruptcy in 1953, Carl Strandlund lived in obscurity until his death in 1974. In a September 12, 1982, Minneapolis Tribune article, Strandlund's widow Clara related how Strandlund reacted to the closure of Lustron: "He was physically and mentally destroyed," she said. "Everything we had went. They took everything but our home.”

What were the reasons for the failure of the Lustron Corporation?

- Not enough skin in the game – It is a widely accepted principle of the system of capitalism that a business is more likely to succeed if those involved have an investment and have more accountability for its performance. Banks are do not approve loans for businesses if the principals do not have a significant equity stake in it. This did not seem to be true of the Federal government! Perhaps the concept would have had a better chance of success if the business had a lower debt to equity ratio.
- Too much time to get to market – Lustron's slowness to equip its plant and initiate production is cited most often as a reason for failure. By the time production started, there were many backorders creating frustration among the early adopters that are so critical to the diffusion of an innovation. Alternative solutions to the critical housing shortage emerged during this delay. It is hard to know if being able to supply homes to early adopters in a timely way would have prompted an "early majority" to consider purchasing a Lustron Home. There were orders for approximately 8000 homes from developers that were cancelled toward the end of the life of the Lustron Corporation that might have provided the volume of business needed to sustain it.
- Too far fetched – It is easy to say in hindsight that the idea of a mass produced, steel home was just a bad idea given the predominance of "custom-built" homes at all price points. If there had been earlier success, there was a plan to develop more luxurious homes to which first-time buyers would upgrade. This might have also enhanced the brand image beyond the "entry-level" perception of Lustron Homes.
- Too expensive – By the time Lustron Homes were coming off the assembly line, the cost had risen from the estimated approximate amount of $5,000 to $11,000. Not included in the list price of the home were the cost of the lot, concrete slab on which the home was to be assembled, and the cost of assembly and setting up the utilities. While the argument of the low cost of maintenance was used to market Lustron Homes, and there was a perception that they were of very high quality, the original concept of producing low cost homes for returning veterans was never realized.
- Politics – "government conspiracy theory" – Some think that the construction trades and industries who were competing for scarce supplies of steel might have worked against the success of a nationally distributed prefabricated, all steel house. Residential building codes in some municipalities may have discouraged or banned the erection of pre-fabricated residential structures.

There has been an ongoing fascination with Lustron Homes to this day. The recent resurgence of interest in these homes may be connected with the so-called "retro" fad that celebrates designs typically referred to as "post-modern" and "mid-century." Some have described fans of the Lustron Homes as a "cult following." One documentary was titled "Lust for Lustrons." Because of the limited number that were actually build, some consider a Lustron Home to be a "collectable." In fact, one of the local contacts for information used in this essay Steve McLoughlin owns two that he currently has in storage. Several Lustron Homes are listed on the National Register of Historic Places. The Lustron Preservation Society has been started by a local resident Alex James, now 87

years old and lives on North 4th Street in Columbus. He was one of the earlier, long tenured employee of the Lustron Corporation and the author of the Lustron Home Erection Manual. In 2005, 200 people from 17 states attended a Lustron Homes convention that was held at the Whitehall-Yearling High School with a dinner at Monaco's restaurant on Cleveland Ave. If you own a Lustron Home, you can register it at The Lustron Connection.

Two books have been written about Lustron Homes – both of which I have checked out and are overdue at the Knowlton School of Architecture Library. The earlier and more readable is *The Lustron Home – The history of a postwar prefabricated housing experiment* by Thomas T. Fetters published in 2002. The second, more scholarly work is *Suburban Steel – The magnificent failure of the Lustron Corporation* by Douglas Knerr published by the Ohio State University Press in 2004.

In 1994, buried in a forgotten box in the Ohio State Historical Society, film producers Bill Kubota, Ed Moore, and Bill Ferehawk discovered a trail of newspaper clippings, Senate hearing transcripts, and internal Lustron Corporation documents that in the words of a promotional statement for the film "…suggested a collapse of what was being called in 1950 the "General Motors of housing" … brought on not by simple market forces but by a government conspiracy that reached all the way to the Truman White House. The one-hour documentary was titled *Lustron – The house America's been waiting for*. One of the theories offered in this documentary is the corruption of the RFC. The RFC had a history of corrupt activities, including an $80 million to the Baltimore and Ohio Railroad that was followed by efforts to name RFC officials to executive positions in the railroad and provide stock in the company at greatly discounted prices. There is evidence that the RFC tried to do the same thing with the Lustron Corporation, but Carl Strandlund refused to cooperate. As a result, a loan that was thought to play an essential role in bridging the gap between underwriting the cost of building and equipping the factory and being able to provide larger numbers of homes to developers was never granted.

Of local interest is an effort by the Whitehall Historical Society to relocate a Lustron Home in this suburb of Columbus in what is called the "Homestead Project." Because of the interest in these homes and their historical significance, they occasionally are offered free of charge to anyone willing to bear the cost of disassembly. Such was the case with the Whitehall Historical Society, who has secured both a home, and the scarcer garage and is erecting both at a site in the Whitehall Community Park on North Hamilton Road. The garage is currently standing at the south end of the parking lot, and there are plans to erect the Surf Blue house that is currently in storage this spring. "Lustrons are representative of Whitehall's quick evolution during those years from a sleepy farming community, to a modern suburb of entry-level tract housing" according to Steve McLoughlin, secretary of the Whitehall Historical Society and chairman of the Homestead Project. He adds, "This type of house defined the course of the city's development"

Those sufficiently fascinated by this topic might be interested in the 3rd annual Lustron Convention that will be held on Saturday, June 9, 2007 in Cedar Rapids, Iowa. The

author of one of two books written about Lustron Homes, Tom Fetters is confirmed as a speaker and his books will be available for purchase and autographing! Alex James, Columbus resident and founder of the Lustron Preservation Society is also confirmed as a guest speaker - although by video presentation - but his autographed reproduction Lustron Home Erection Manuals will be available for purchase. Several Cedar Rapids Lustron Homes will be open for tour. It should be quite an event!

Those less interested, but would like to see a Lustron Home might consider driving by one. Here are the locations of some of the 22 existing homes listed in Fetter's book:

- 34 South Broadleigh (east of Bexley)
- 27 E. Kawanha
- 1818 East Long St.
- 272 East Weisheimer
- 7658 East Main St. (Reynoldsburg)

I am told that the resident of the Reynoldsburg home is happy to have people view the inside of her home if they are interested and make arrangements in advance. If you wanted to stay in a Lustron Home on your next vacation, it can be done. Steel Away Vacation Rental in Chautauqua, NY offers weekly rental on the grounds of the Chautauqua Institute. Promotional information boasts, "With three bedrooms, two baths, a barbeque outside and two bicycles, this historic home is perfect for a family getaway."

There is also an existing Lustron Home on the former estate of Carl Strandlund at 3786 Westerville Road. Both his large, traditional, frame house and the Lustron Home built as a "guest house" on the property are still standing.

So, what is the answer to the question posed in the clever title of this essay? The answer is that Kilroy was <u>not</u> here – at least not enough of them.

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