

45. George S. Morison, *The New Epoch as Developed by the Manufacture of Power* (Boston and New York: Houghton Mifflin, 1903), pp. 75–76.

46. Macnie, p. 45.

47. Schindler, p. 111.

48. For too long, however, students of late-nineteenth- and early-twentieth-century America have relied upon *Looking Backward* alone to tell them—and the rest of us—about American culture as a whole at the turn of the century. By their very nature, utopian works deviate from and often distort existing society, not least when their principal purpose is to change it. Consequently, such works do not illuminate the whole of any real-world culture. Rather, they identify particular values, trends, and problems in the culture that fostered them. They must therefore be employed cautiously, as means to full-scale historical inquiries rather than as complete inquiries in themselves. If, then, *Looking Backward* does tell us a good deal about the period in which it was written, as do the other utopian works considered here, it hardly tells us everything we need to know about America then, and neither do those other works.

49. For elaboration, see my "Reconsideration: Harold Loeb's *Life in a Technocracy: What It Might Be Like* (1933)," *New Republic* 175 (October 30, 1976), pp. 42–44.

50. See Warren I. Susman, "The Thirties," in *The Development of an American Culture*, ed. Stanley Coben and Lorman Ratner (Englewood Cliffs, N.J.: Prentice-Hall, 1970), pp. 179–218.

51. On the Technocracy movement, see Henry Elsner, Jr., *The Technocrats: Prophets of Automation* (Syracuse, N.Y.: Syracuse University Press, 1967); William E. Akin, *Technocracy and the American Dream: The Technocrat Movement, 1900–1941* (Berkeley and Los Angeles: University of California Press, 1977).

52. On the World of Tomorrow, see Helen A. Harrison et al., *Daum of a New Day: The New York World's Fair, 1939–40* (New York: Queens Museum/New York University Press, 1980).

53. On these industrial designers and their contributions to the World of Tomorrow, see Donald J. Bush, *The Streamlined Decade* (New York: Braziller, 1975), chapter 8; Bush, "Futurama: World's Fair as Utopia," *Alternative Futures* 2 (fall 1979), pp. 3–20; Jeffrey L. Meikle, *Twentieth Century Limited: Industrial Design in America, 1925–1939* (Philadelphia: Temple University Press, 1979), chapter 9.

54. On the overall failure of other past technological predictions, see George Wise, *Technological Prediction, 1890–1940*, Ph.D. diss., Boston University, 1976. Wise's list of "the fifty most frequent predictors" (p. 318) includes Bellamy and Thurston. The predictions by these fifty prophets about technological advances, however seriously flawed, were much more accurate than their predictions about the social effects of those advances.

55. On the rise of "alternative futures," see Alexandra Aldridge, "Imagining Alternative Futures: The Polarities of Contemporary Utopian Thought," *Journal of General Education* 33 (spring 1981), pp. 80–89.

56. On the relationship between technology assessment and environmental-impact assessment, see Harvey Brooks, "Technology Assessment in Retrospect," in *Technology and Change*, ed. John C. Burke and Marshall C. Eakin (San Francisco: Boyd and Fraser, 1979), pp. 465–476. On the relationship between technology assessment and retrospective technology assessment, see Stephen H. Cutcliffe, "Retrospective Technology Assessment: A Review Essay," *Science, Technology, and Society* 18 (June 1980),

7–19

The Home of Tomorrow, 1927–1945

Brian Horrigan

The phrase "home of tomorrow" is highly evocative. The images it calls up today are likely to be either faintly ludicrous or suffused with vague memories of silly cartoons, tourist traps, and pulp science fiction. However, during the period that encompassed the heights of 1920s prosperity, the depths of the Depression, and the patriotic deprivation of the World War II home front, the term "home of tomorrow" was often taken very seriously. At world's fairs and expositions, in department stores, and in home magazines, Americans witnessed an apparently endless parade of predictions about the shape of homes to come.

Whether designs, models, or actual prototypes, these visions of the home of tomorrow had a certain consistency. They represented ideals, and they stood in stark and purposeful contrast to contemporary reality. Their creators were a sizable group of architects, engineers, and businessmen who, acting partly out of a conviction that the housing industry had been mired too long in the bogs of tradition, partly in response to the perceived esthetic dictates of a "machine age," and partly from a desire to stimulate consumption, espoused the idea of the house as a technologically perfected artifact.

During this period, "home of tomorrow" became a kind of code phrase for architects and engineers, a way of identifying their intentions and their broader motivations. A visionary design or model might be used as a device for physically symbolizing a wider vision of the future of housing. Some architects truly believed that they were, in fact, limning the future. For others, the phrase connoted a critique of the present. Professedly futuristic designs could be effective demonstration pieces for new materials or improved building methods. The phrase could also be used in signifying that the work had reached the loftiest heights of au courant modernity.

In the history of the home of tomorrow in this period we can witness architects and reformers struggling to reconcile notions of a design idiom appropriate to the age with tradition-bound sentiment, and we can see their efforts to bring the house—that most recalcitrant of building types—into the mainstream of American technological development. In retrospect, we can discern three scenarios. In one version, architects led or inspired by the European *avant-garde* would transform the house into a paradigm of modern elegance. In another, engineers or would-be industrialists would clone thousands of cheap dwellings from a single prototype. In the third scenario, the efforts of both the architect and the engineer would be eclipsed by those of the purveyors of consumer goods and gadgets. These scenarios did not follow one upon the other, nor did they remain distinct; they blended with each other and with other aspects of American culture in the interwar years.

The “homes of the future” of these decades cannot be understood apart from a series of interrelated phenomena. First, though housing construction boomed to unprecedented levels in the 1920s, the demand far exceeded the supply, and this frustrating disparity only deepened with the coming of the Depression and the war. The expansive economy and rising standards of living of the early 1920s had heightened the already considerable demands for durable consumer goods. At the head of the list of suddenly indispensable symbols of middle-class status—automobiles, radios, home appliances—was the most durable and elusive good of all, the single-family home. A very real sense of a housing crisis pervaded the era.¹ Second, there was the revolution in design known simply as modernism (or often, in architecture, as the International Style), which had begun in Europe in the wake of World War I. The progenitors of modernism identified their aim as a renunciation of past forms and solutions, and emphatically insisted that design reflect contemporary reality. Humans were racing toward a future of rationality, freedom, and unity with their mechanized, industrial environment, and architecture would provide homes for them. The movement called for far more than structural or formal revolution. Always implicitly and sometimes explicitly, modernist architects demanded a total reconsideration of the form and function of the dwelling. “The house is a machine for living,” announced the Swiss architect Le Corbusier, providing the movement with its most notorious slogan and the clearest statement of its revolutionary goals. With hindsight, one can recognize in the late 1920s a zenith in the arc of modernist design and thought in Europe. At the same time, the style and its accompanying rhetoric were attempting to take root in American soil. In the United States, modernism was identified literally

as a visionary style. The shocking designs that modern architects boldly cast into the American landscape were widely apprehended as true rehearsals for the future.² Finally, the “housing futures” offered during the period were ineluctably linked with machines and mass production, though each option represented a different interpretation of this relationship. The spectacular success of the techniques of mass production (which had been largely responsible for the prosperity of the 1920s) began to tempt engineers and architects to transfer these techniques wholesale to the housing industry. Many observers believed—or feared—that the market for new cars was reaching a plateau, and some proposed replacing it with a market for housing manufactured on an industrial scale; like automobiles, houses would roll off assembly lines by the thousands in affordable, accessible packages.³ Architecture critic Theodore Morrison wrote in *House Beautiful* in 1929: “Until our houses can be made in the factory, by machine, we shall have no true economy of housing comparable with the economy prevailing throughout industry generally. Until they can be installed, not built, we cannot expect them to be truly efficient and rational adaptations of means to an end.”⁴ What had charged Morrison with this conviction was the recent appearance of the most radical dwelling machine of the day, R. Buckminster Fuller’s Dymaxion House. Fuller’s brilliant, quixotic design so thoroughly established a pattern for all subsequent futuristic speculation on the home that it is worth examining in some detail.

In 1927, Fuller was a young, unemployed, mostly self-taught engineer bursting with revolutionary notions about the present and the future of the American housing industry. That year, Fuller published his views along with a detailed description of a house for mass production in a 50,000-word broadside entitled *4-D*.⁵ He sent copies to friends and family members and to such luminaries as Henry Ford, Bertrand Russell, and advertising man Bruce Barton. To dramatize his ideas, Fuller constructed a large model of his proposed house, which he called a 4-D Utility Unit.

On the reasoning that the home of the future should be lightweight and easily demountable, Fuller’s design featured a central aluminum “mast,” from which transparent glass and casein walls and inflated rubber flooring were to be suspended by wires. The mast (the analogy to naval architecture was intentional) was to contain all the household services—one of the first instances in domestic planning of the “service core.” In the core were to be two bathrooms (complete with vacuum electric hair clipper, vacuum toothbrush, and chinning bar), a self-activating laundry unit that would deliver washed and dried clothes

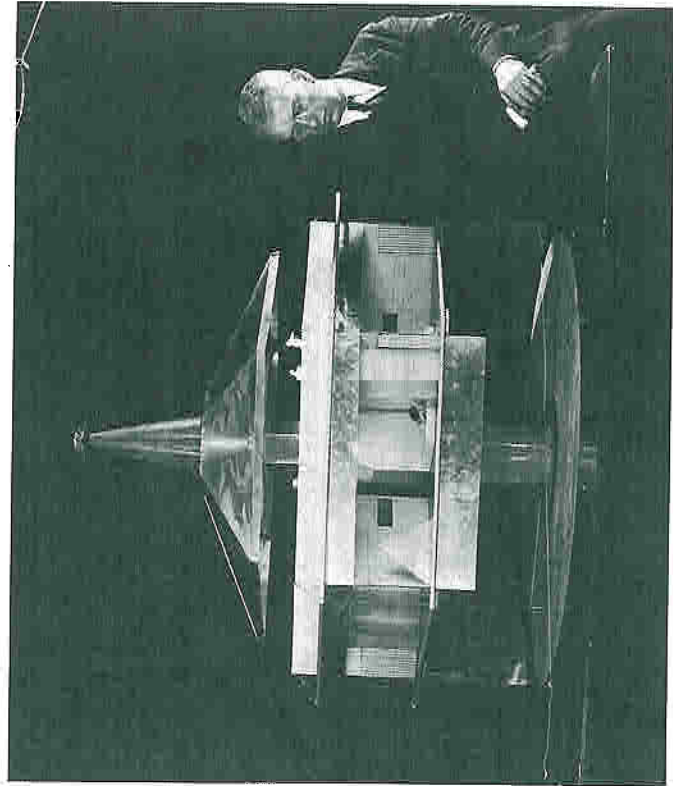


Figure 1

The Dymaxion House (4-D Dwelling Unit) of 1927 marked Buckminster Fuller's sensational debut as a visionary engineer and architect. Buckminster Fuller Foundation, Los Angeles.

in 3 minutes, sewage disposal tanks, an electric generator, an air compressor, a humidifier, and a kitchen with every conceivable appliance. The two small bedrooms were to have pneumatic beds with neither sheets nor blankets, these being unnecessary in the perfectly climate-controlled house. With drudgery eliminated, wrote Fuller, "the real individualism of man and his family may be developed . . . creation will set in as never before." To this end, space was set aside for a "creative room" (or a "get-on-with-life" room, as Fuller also called it), which would be equipped with a typewriter, a calculator, a telephone, a dictation machine, a television, a radio, a phonograph, and a mimeograph machine, all in one factory-assembled unit. In the space beneath the house would be stored the family "transport unit," an amphibious auto-airplane.⁶ The houses were to be capable of being stacked on a single tall mast to make up an apartment tower. Singly or in stacks, they could be moved, preferably by zeppelin, and plugged

in anywhere. Since each house would have its own power generator and a recycling water system, attachment to public utilities would be unnecessary. In fact, housing in the Dymaxion Age would be very much like a utility. Produced by the millions, houses would be provided as public utility companies provide gas, electricity, and telephones. Obsolete equipment would be replaced by improved models.

Today, it seems almost preordained that Fuller's public technological spectacle should have appeared in 1927. Lindbergh's flight, the first talking movie, the establishment of transatlantic radio-telephone service, the first public demonstration of television, the opening of the Holland Tunnel, and the dramatic appearance of Henry Ford's Model A all occurred in that year, producing a kind of mass hysteria.⁷ Bucky Fuller, living in raucous, industrial Chicago, no doubt felt the day's fervid excitement for science, machinery, and massive industry.

Fuller's model of the Dymaxion House was first shown to the public in April 1929 at Marshall Field's department store in Chicago. It was used as the centerpiece of a display of modern furniture from the 1925 Paris Exposition des Arts Decoratifs, from which had emanated the earliest waves of modern design to break on American shores. The display, accompanied by lectures delivered by the voluble Fuller six times a day for two weeks, caused a sensation.

The Dymaxion House was a bolt out of the blue. Amid all the futuristic clangor of technological newness in the late 1920s, there had as yet been no murmur about that sacrosanct American institution, the home. Fuller changed all that. Here, in 1929, was a shocking vision of the future of the home. Shocking, yes; but, given all the recent invasions of technology into private life, perhaps believable.

The Dymaxion House gained instant notoriety for its creator. Everywhere Fuller appeared with his model he attracted hundreds of curiosity seekers and a great deal of media attention. Fox Movietone released a newsreel featuring the model, and scores of newspaper and magazine articles heralded the Fuller future: "Foresees Home Made in Factory—Ready to Occupy;" "The House of the Future;" "House in Utopia;" "Machine-made Family Life;" "Modern Houses will be Built for \$3,000;" "Home in the 21st Century;" "Homes You Will Carry With You When You Move;" "Bedsheets Unnecessary in House of the Future;" "House of 1982 Built Like Ship;" "Everyman's House."⁸ Since Fuller's model was usually exhibited in a gallery, in an artist's studio, or at an arts club meeting, many saw the house as the latest event in a continuing artistic revolution; "the most exciting art idea in centuries" a Chicago paper called it.⁹ Others concentrated on the consumerist implication of a house full of gadgetry. Still others saw the

house as a manifestation of the "world-wide '100% sunshine and fresh air' movement," of the "nudism and sun-bathing cults that have sprung up on all five continents"¹⁰—a notion Fuller had encouraged by placing a few naked dolls in the model.

An artistic watershed; a technological paradise; a luminous, healthy, liberating environment—these were all promised by the Dymaxion House, and constituted something of a thematic checklist for subsequent homes of the future. But Fuller's intent was deeper still. As much as it was a prediction of the future, the Dymaxion House was a polemical assault on the present. Fuller's model was an effective bit of agitprop, which he used to inveigh against a housing industry that was complacent and ineffectual.

Fuller fervently believed in the essential moral rightness of his crusade, in the supposed honesty of industrially designed objects. The transcendentalism and technological determinism of 4-D place its author firmly in the American grain:

As mechanical truths are revealed, so do we progress toward perfection: though there can be no absolute perfection in the material world. So has the automobile or airplane continually approached perfection. As it has approached perfection by the process of the application of truth, so has it approached one final design. . . . Just so is there a final best design, in our mechanical age, of the home or living quarters. Eventually, through economic pressure, and the desire of mankind for individual abstract expression, property ownership and travel, this home will come.¹¹

Mass production was for Fuller a kind of redemptive force, the best path to true rationalization of the housing industry. Of course, standardization had played an important role in American domestic architecture since the middle of the nineteenth century. In the 1840s, prefabricated (or "pre-cut") wooden balloon-frame houses were being shipped to all parts of the country. By the 1920s, mass-produced ornament, doors, windows, stairs, and household equipment had become indispensable elements of the average American house.¹² To Fuller, and to virtually every other critic of the period, standardization applied in this fashion had degraded the American house. However, it was thought that standardization, reinterpreted and controlled, could reverse this decline and elevate the house to a state of modern perfection.

The possibility of transforming the housing industry through mass production captured the imaginations of many architects, engineers, industrialists, and social commentators. In 1932, *Fortune* magazine published a series (unsigned, but written by Archibald MacLeish) on

the disastrous state of American housing. In the final article, entitled "Solutions," MacLeish wrote: "... standardization by factory production with expert engineering and complete functional efficiency is certainly preferable to the standardization by sheer imitation and inertia which is as visible today in the mock European houses of the fashionable suburbs as in the mock suburban villas of the subdivision lots."¹³ Thoroughly convinced by the scenario Fuller had outlined, MacLeish asserted: "It is now past argument that the low-cost house of the future will be manufactured in whole, or in parts, in central factories, and assembled on the site. In other words, it will be produced in something the same way as the automobile."

In basing their rhetorical model on the automobile assembly line, the paragon of American industrial success, the proponents of efficient housing production were helping to create what David Hounshell has termed an "ethos of mass production." A clear expression of this ethos was already available by 1925 in a lengthy treatise, *The Way Out: A Forecast of Coming Change in American Business and Industry*, in which a successful Boston businessman and self-styled prophet Edward A. Filene argued for the universal application of Ford's methods, claiming: "... a Fordized America built upon mass production and mass distribution will give us a finer and fairer future than most of us have dared to dream."¹⁴ Thus, the slogan "Houses Like Fords," which became popular at the end of the 1920s and in the early 1930s, was more than just a catchy headline; it was a rallying cry and an agenda for the future.

In the development of an ideology and a tangible imagery of mass-produced homes of the future, the contributions made by European architects of the "modern movement" were critical. In 1923 Le Corbusier issued this exhortation in his tract *Vers une architecture*: "Industry on the grand scale must occupy itself with building, and establish the elements of the house on a mass-production basis."¹⁵ The English translation of Le Corbusier's manifesto, published in 1927, had an enormous impact on American architectural consciousness, but no exemplar of the movement's goals was built in the United States until 1929, when architect Richard Neutra completed his early masterwork, the Lovell House in Los Angeles. Combining industrial imagery and construction methods (welded steel frame, flat roof, ribbon windows, and sprayed concrete walls), the Lovell House remains the archetypal modernist house.

Neutra, who had emigrated from Germany in 1923, found in Dr. Philip Lovell the ideal client for his unstintingly avant-garde architecture. A well-to-do, free-thinking "naturopath," Lovell, as Neutra later wrote, "wanted to be a patron of forward-looking experiment.

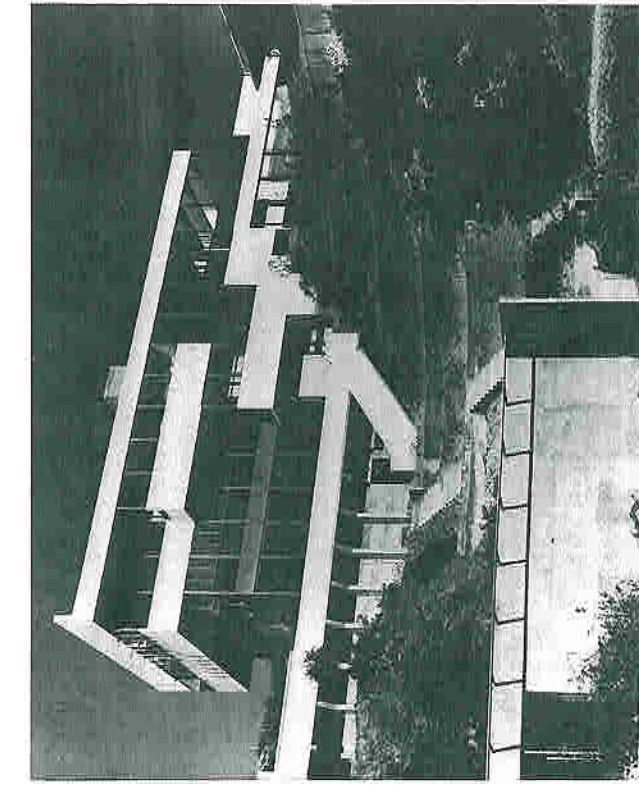


Figure 2

Richard Neutra's elegant, severe Lovell House, completed in 1929, remains the archetypal "machine for living" in the United States. Richard and Dion Neutra, Architects, Los Angeles.

He would be the man who could see 'health and future' in a strange wide open filigree steel frame, set deftly and precisely by cranes and booms into this inclined piece of rugged nature."¹⁶ Neutra and his fellow modernist émigrés had expected to find such clients in the United States. Americans, they thought, would be more receptive than Europeans to the architecture of the machine age because they had so easily integrated the principles of mass production into their lives. A later student of Neutra, California architect Harwell Harris, said: "It would not be far-fetched to think that Neutra came to America because America was the home of Henry Ford. Ford was more amazing to Europeans than to us, who saw in him our own features."¹⁷ Nevertheless, for all its unconventional characteristics, the Lovell House was anything but an industrial prototype. On the contrary, it was an expensive, hand-crafted, machine-age mansion. It was the *image* of mass production that Neutra invoked, down to the Model T headlights used as interior lighting in playful homage to Henry Ford.

Notoriety instantly accrued to the houses built by Neutra and other modernists. Though their number was relatively small, their stunning, iconoclastic appearance assured them a place in the public eye and convinced many that these were indeed the advance guard of a whole new race of buildings. Though critics caviled that the "so-called International Style house developed in America" was "merely the old house at the old price in a new envelope," these houses were emotionally, if not intellectually, persuasive as clairvoyant designs for living.¹⁸

By 1930, then, a dual image of the home of tomorrow had been developed before an expectant public. On the one hand was the luxurious "machine for living" of the modern movement, on the other the cheap, identical, machine-made house of Fuller and other proponents of mass production. Both had great potential appeal in Depression America, the one offering escape into a voluptuous Hollywood future and the other promising industrial recovery and universal homeownership. Though they shared an ideological foundation in American technological utopianism, the two images existed in uneasy tension.

This tension emerged very clearly at the Century of Progress Exposition in Chicago in 1933 and 1934. Innovations in housing had been a part of the displays at world's fairs and expositions since the World Exhibition at London in 1851, but at no fair before the Century of Progress Exposition had housing (specifically, the single-family house) played such an important role. Some observers expected that the fair would have as profound an effect on the course of American housing as the Columbian Exposition of 1893 had had on American architecture in general. Five acres of the lakefront site were given over to a section called "Home and Industrial Arts." Thirteen full-scale, furnished model homes were exhibited, nine of which were intended to represent some approach to prefabrication. In fact, it was with this heavily publicized exhibition that the term *prefabrication* came into general use as a substitute in discussions of housing for *mass production*.¹⁹

The star attraction at the Century of Progress Exposition was George Fred Keck's "House of Tomorrow." Built around a central utility core, the twelve-sided, steel-framed, completely glazed structure strongly recalled the Dymaxion House.²⁰ Keck's house also looked "industrial," though it was built on the more conventional principle of compression rather than on Fuller's suspension system. On the ground floor were a recreation and work room, a garage, and a hangar for the family airplane. Modern, custom-designed furnishings in rich materials (leather, walnut, ebony, mahogany, and chrome) abounded. The House of Tomorrow, which cost 10 cents to see, was financially the most

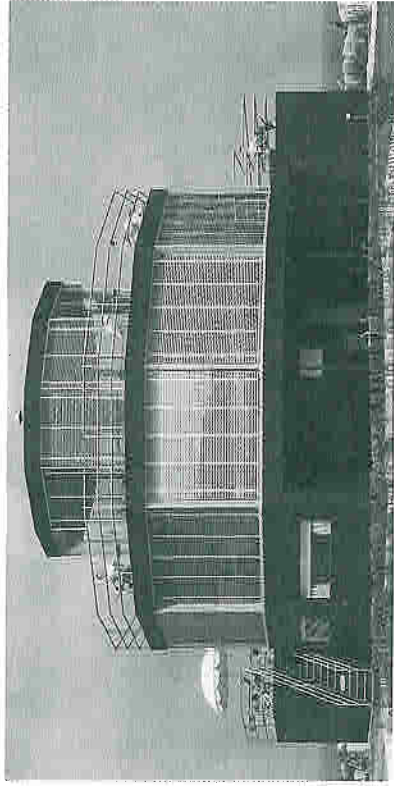


Figure 3

The “House of Tomorrow,” designed by George Fred Keck, was erected for the Century of Progress Exposition in Chicago in 1933. Hedrich-Blessing.

successful house at the fair. For most of the 750,000 people who saw this dazzling structure, it was the first real encounter with that “machine for living” they had been hearing about.

Though Keck’s House of Tomorrow was certainly a radical design, it remains difficult to imagine it in serial production, at least at a price affordable by any but the wealthy. Keck’s image of the future, at least in this instance, was one of luxury. He seemed to be following the lead of modernists such as William Lescازه, a Swiss architect who, like Neutra, had worked in the United States since 1923. In 1928 Lescازه had published a design for an extravagant “Future American Country House” in the machine-for-living idiom.²¹ These architects invoked the future not to signal a revolutionary program of mass-produced houses but rather to call attention to the position of their work on the cutting edge of design and to appeal to a fashion-conscious clientele.

Keck built another house—the “Crystal House”—for the second year of the Chicago fair with his share of the profits from the House of Tomorrow admission fees. By 1934, he had felt the need to make some gesture toward producing a house that “lends itself to prefabrication,” as he explained, “in order that it may be within reach of the masses.” Keck estimated that, with a production run of 10,000 units, this house could be constructed for \$3,500 or less.²² The Crystal House was essentially a glass box suspended within a structural steel cage. Completely air-conditioned, it was filled with appliances and expensive copies of Bauhaus furniture. As in the House of Tomorrow,

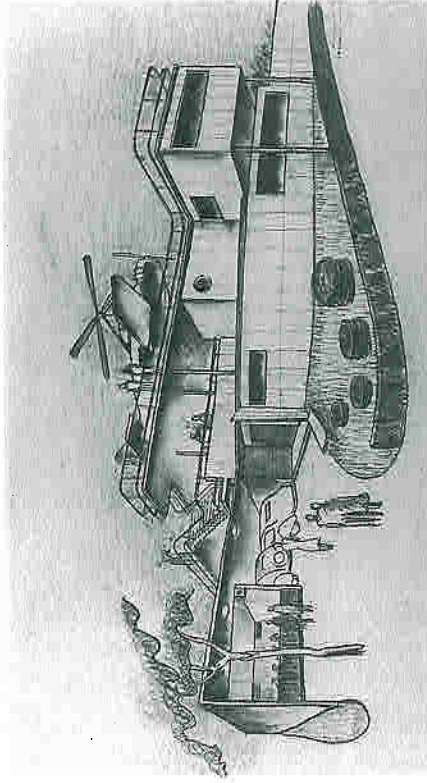


Figure 4

William Lescازه’s 1937 design for the “House of 2089” was a streamlined reworking of an earlier futuristic project, and included a “auto-giro” parked on the flat roof. Avery Library, Columbia University.

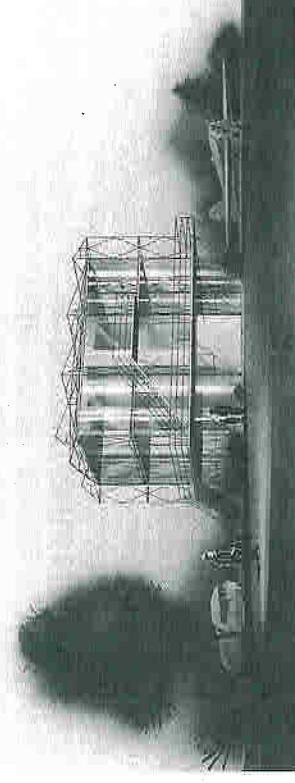


Figure 5

George Fred Keck’s entry for the second year of the Chicago fair was this “Crystal House.” Iconographic Collections, State Historical Society of Wisconsin.



Figure 6

General Houses, Inc., founded in 1932 by architect Howard Fisher, promised to mass produce houses by adopting the techniques of the automobile industry. This full-scale prototype was exhibited at the Chicago fair in 1933. Hedrich-Blessing.

rich woods and chrome were used in the interiors. Suggestively displayed with the house was Buckminster Fuller's three-wheeled, tear-drop-shaped Dymaxion Car. Though the innovative construction techniques, rapid erection, and industrial materials of the Crystal House undeniably implied mass production, the house as exhibited—and thus as publicly perceived—was hardly more reasonable as a prototype of mass-produced things to come than its predecessor. As critics pointed out, few of the promises of prefabrication made at Chicago were kept. Such isolated reveries as the Crystal House provided no realistic responses to the universally acknowledged shortage of affordable dwellings.²³

The house at the Century of Progress Exposition that seemed to housing observers to be the true augury of the future was a small, self-effacing entry from a new company, General Houses, Inc., the brainchild of 30-year-old architect Howard Fisher. This one-story, single-family house was meant for reproduction on a vast scale. With its flat roof, steel casement windows, and enameled steel panel walls, the unornamented house was the epitome of the trim little machine. To Fisher, the frankly modern aspect was imperative for both structural

and stylistic reasons. At a symposium on prefabrication sponsored by *House and Garden* magazine in 1935, he said: "The public's conception of style has heretofore been much more advanced in the case of their automobiles, for example, than in the case of their houses; but I believe they are going to develop an equally advanced design in houses. . . . I believe the greatest selling point these houses will have will be style."²⁴

General Houses initially offered eighteen variations on the basic model exhibited at the fair, each coded with a "chemical formula," such as " K_2H_4O ," which identified the particular type and gave it the cachet of scientific research. The small models were to sell for about \$4,000, and General Houses anticipated expanding its repertoire to include larger houses—the Cadillacs or Lincolns of the line.

General Houses was one of a handful of prefabricated-housing organizations to enjoy a small measure of success during the Depression. Most architects and engineers who applied themselves to the problem of the house during this period, whether concentrating on new design or innovative housing equipment, shared a significant shortsightedness: By focusing on the house itself, they failed to respond to the wider range of public demands and expectations. To most prospective home buyers, problems in design and construction paled in comparison to the problem of getting a home at all. It was "not so much a lack of raw materials or skill that creates the 'social problem' of a housing shortage," wrote Robert and Helen Lynd in *Middletown*, their 1929 study of a Midwestern community, as the "the intricate network of institutional devices through which a citizen of Middletown must pick his way in undertaking the building of houses for others or in trying to secure a home for his own use."²⁵

Some housing prophets of the early 1930s took the automotive-marketing model to extremes, forecasting a time in the "not-far-distant-tomorrow" when

All the home owner need do is visit the "Home Headquarters and Architects Clinic" in his own hometown or in a nearby city. There, houses that are within his price range will be presented for his inspection. He will concentrate on the planning and will consummate the purchase by signing documents. But these documents need be no more complicated than that signed by today's purchaser of a car on the installment payment plan.²⁶

In planning General Houses, Howard Fisher had perceived these problems. What distinguished General Houses was not its hardware but its broader vision of the housing problem. As an architecture student at Harvard in 1929, Fisher had been inspired by Fuller's ideas on the future of housing as a service industry. The youngest member

of a prominent family from Chicago's North Shore (his father, Walter L. Fisher, had been Secretary of the Interior under Taft), Fisher saw with a clarity and an honesty unusual among 1930s prefabricators that the housing problem was "many separate problems which affect and are affected by the current economic, social, and political order."²⁷ By the spring of 1932, General Houses had been organized as the "G.M. of the new industry of shelter," with architects, engineers, manufacturing executives, realtors, and lawyers on its staff. It proposed to market an entire housing business in all its phases: research, advertising, legal counsel, financing, land control, landscape architecture, community planning, and interior decoration, as well as the development of prefabricated houses.²⁸ General Houses intended to act, as did many automobile manufacturers of the day, as an assembler of parts rather than a primary producer. The company enlisted the participation of an impressive battalion of manufacturers, including the Pullman Company, the Container Corporation of America, Inland Steel, Curtis Companies, Inc., American Radiator, Pittsburgh Plate Glass, General Electric, and Thomas A. Edison, Inc.

For a time after the Chicago fair, a "prefabrication bandwagon" rolled through American business.²⁹ The mood was feverish, at times carnivalesque. A new prefabrication company, American Homes, Inc., unveiled its "Motohome" with considerable fanfare at Wanamaker's department store in New York on April 1, 1935, with Sara Delano Roosevelt, the president's mother, cutting the ribbon on a house wrapped in cellophane, that newest and most futuristic of materials.³⁰ The Motohome was named for its so-called Moto-unit, a central service core between the kitchen and the bathroom containing the plumbing, heating, and electrical equipment. The complete but unassembled house would arrive at its site in a truck labeled "This Truck Contains One American Home." "The packaged home is here," proclaimed Katharine Bissell, a writer for *Women's Home Companion*, "and will soon be exhibited at your favorite department store. Imagine being able to buy your home as you would buy a package of cereal or face powder—a home complete in every minute detail, that you can actually see, touch, examine, and discuss before you buy it, and above all know exactly what it is going to cost, down to the last penny before you move in."³¹ American Homes took the concept of packaging to new heights. Each house came equipped with a two-day supply of groceries in the kitchen and a complete set of home advice manuals, with tips for the homemaker on home maintenance, decoration, landscaping, household budgeting, cooking, etiquette, and child-rearing.³²

In short, one bought not only a house but an entire code of middle-class respectability.

The Motohome's architect, Robert McLaughlin, had begun his career designing lavish country villas for wealthy clients. However, by the late 1920s he had, as *Fortune* was later to phrase it, "heard the cries for low-cost housing, and conceived the possibility of a tremendous market and an architectural practice far more exciting than the conception of upper-crust manor houses—and far more lucrative as well."³³ McLaughlin formed a partnership with housing advocate Arthur C. Holden and began to study the problem of low-cost housing. In 1933, after the success of twenty experimental prefabricated houses for coal workers in Pennsylvania, McLaughlin founded American Houses, Inc. The next year, American Houses joined forces with Houses, Inc., a company founded with the backing of the chairman of the board of General Electric, Owen D. Young, and led by self-taught engineer and entrepreneur Foster Gunnison. Houses, Inc., built no houses of its own but rather was set up as a holding company to acquire and promote independent prefabrication systems. Gunnison orchestrated the spirited publicity campaigns for the Motohome and was the source of most of the various sales gimmicks, including the food in the kitchen, the advice manuals, and the toilet seat that "weighs the sitter when he raises his feet."³⁴

Fisher, McLaughlin, and Gunnison typified the youthful architects-entrepreneurs who broached the possibility of a future of prefabricated homes. However, several established architects turned their sights in this direction in the 1930s. Richard Neutra, already famed as the pre-eminent designer for the wealthy avant-garde in Southern California, introduced his designs for a "Diatom One + Two" house based on a Fulleresque suspension principle and having walls of a unique diatomaceous-earth composition.³⁵ William Van Alen, the flamboyant architect of the Chrysler Building, designed a severe "steel-shell" house for a new company, National Homes, Inc., in 1935, and erected it, incongruously, on the corner of 39th Street and Park Avenue in Manhattan.³⁶ Frank Lloyd Wright, his career in eclipse since the early 1920s, began building his "Usonian Houses" in 1934. Though still designed as individual commissions, the small and affordable Usonian Houses were also meant by Wright as exemplary models of the homes that would one day multiply across the landscape of his epic, futuristic "Broadacre City."³⁷

Most of this movement was smoke, with very little fire. Broadacre City remained a compelling paper vision. The little house on Park Avenue disappeared, taking National Homes with it. Neutra's Diatom

achieve truly affordable houses would require an immense outlay of capital. When officials of the Century of Progress Exposition approached Fuller with the proposal that he exhibit a full-scale mockup of the Dymaxion House, he refused, saying he would be satisfied only if a true prototype for mass production could be built, the cost of which he estimated at \$100 million.⁴² Enthusiastic tyros such as Howard Fisher and Robert McLaughlin may have subconsciously identified with the myth of the heroic, youthful innovator creating a vast, new, and necessary industry—a myth that Henry Ford had created almost singlehanded. But American business policy had become so thoroughly governed by the tenets of corporate capitalism by the end of the 1920s (if not much earlier) that to have anticipated success for a sweeping revolution in such a critical industry without massive assistance from major corporate sponsors was self-delusion at best.

A third and related reason for the failure of the vision lay in the fact that many large companies were indifferent or even hostile toward it. As already mentioned, General Electric offered brief initial support to the production of the Motohome, in a rather tenuous alliance made on the basis of an old friendship between G.E. chairman Owen Young and Foster Gunnison. However, dissent among the principals of American Homes led both Gunnison and General Electric to sever their ties with the company. Likewise, none of the impressive corporate associates of General Houses ever acted as true sponsors or underwriters; their commitment had been only to supply parts. Among steel companies there had been a flurry of interest in the possibilities of mass production of steel houses in the early 1930s, and several major concerns had built experimental houses, such as American Rolling Mills' "Ferrol-Enamel House" at the Chicago fair. But the future of steel houses, which many had predicted in glowing terms, also failed to arrive.⁴³ Another large corporation, American Radiator Company, was rumored in the early 1930s to have a major prefabricated housing program waiting in the wings. Yet corporate timorosity about the field's possibilities was such that the American Radiator test house was "shrouded in secrecy" on the roof of the company's skyscraper headquarters, and the plan was apparently shelved.⁴⁴

Corporate reluctance matched public sentiment and taste. Even in a hypothetically clear field, it is doubtful that American corporate interests would have backed the development of a mass-produced house, so antithetical did it seem to traditional patterns of American domestic life. Americans may have flocked by the thousands to the department-store and exposition displays, but they went to look, not to buy. Their initial curiosity about the machine style never ripened

house was never built. The ambitious program that Howard Fisher had sketched in 1932 never materialized. None of the more enlightened features of General Houses—the financing, the legal services, the community planning—were ever instituted, and the company became a supplier of conventionally styled though still largely prefabricated houses. Though American Homes survived well into the 1940s, fewer than 150 Motohomes were ever actually built; its later products, like those of General Houses, grew more conservative in shape and less idealistic in content. In 1936 the National Association of Housing Officials reported that, in spite of a "general impression" that prefabricated houses had solved the problem of better building at lower costs, a thorough survey of the market revealed "no immediate prospects for mass production."⁴⁵ In the last five years of the 1930s, when housing starts were slowly climbing again, fewer than 1 percent of all new single-family houses were prefabricated.⁴⁶

Thus, the belief that the future of the house could be enacted through mass production faded in the same decade in which it had so confidently arisen. Perhaps the most serious failing of this vision was that it focused on a single, traditional building type—the free-standing single-family house. It was as true in the 1930s as it is now that housing must be investigated not solely as a technological issue but as one that is intimately woven into the social fabric. In 1931, Lewis Mumford chided proponents of the factory-made home for promoting an "unworkable anachronism," which he archly defined as "a communism of technique in the production of houses, with the usual anarchy and monopoly in our system of land holding, financing, and community design." Mumford persuasively argued that "no decent 'house of the future' can be designed in the factory alone. To forget this is to foster specious hopes. . . ." Mumford was at the center of a group of architects and social critics who had been arguing for a new "social economy of housing" since before World War I. The efforts of this group of "housers" (as they were sometimes called) to promote new ideals of community planning eventually bore fruit in the New Deal housing programs, especially the Greenbelt Town Program. The effect of these programs on the public consciousness may have helped deflate the dreams of the prefabrication entrepreneurs. Housing and community planning were moving (or so it seemed in the mid 1930s) into the realm of government control and public policy. The future began to look very different.⁴⁷

A second reason for the failure of the dream of mass-produced homes lay in the simple fact of inadequate capital. Buckminster Fuller realized that to tool up for mass production on the scale necessary to

into complete acceptance, Howard Fisher's sanguine predictions notwithstanding. Even after the prefabricators capitulated to the public preference for peaked-roof wooden houses, the products stayed in their crates.

Although, like the public at large, American corporations ultimately refused to underwrite a future full of modernist mansions or mass-produced homes, they were attracted by a shinier side of the Home of Tomorrow coin: the house as a wonderland of gadgets. It is not surprising that the companies that associated themselves most readily with the Home of Tomorrow were the major manufacturers of electrical appliances. General Electric exhibited a "House of Magic" at most of the major fairs of the 1930s.⁴⁶ Alleged to "walk and talk," the house was not really a separate structure but a gimmicky update on the department store "demo" home, a kind of stage set on which glamorous women were cast as housewives, running the household machinery and making a sales pitch. Westinghouse, not to be outdone, built an entire "Home of Tomorrow" in 1934 in Mansfield, Ohio. It was intended as a lived-in laboratory in which the company's engineers and their families would temporarily reside to test the equipment. This house, a tour de force of household electrification, was designed to attract attention, which it did quite effectively. Designed by architect Dwight James Baum, the house was a conventional wood-frame and stucco structure, only slightly odd in style—a sort of Regency-Cubist affair, employing virtually none of the already notoriously "futuristic" modern vocabulary. Indeed, architecture was quite beside the point, according to the Westinghouse engineer responsible for the house. "A new profession of 'house engineers,'" maintained Victor G. Vaughan, "will soon absorb all architectural functions except those of a purely aesthetic nature."⁴⁶ The engineers had a field day with the Westinghouse prototype, providing a connected electric load equal to that of 30 average houses, "ready to do the work of 864 servants with the flip of a switch." Some of the features of the house were air conditioning, an electric garage-door opener, automatic sliding doors, an electric laundry, 21 separate kitchen appliances, burglar alarms, 140 electrical outlets, and 320 lights. All this was available, or so it was claimed, for around \$12,000. Westinghouse admitted that the price would probably place the house beyond the means of most families in the future, thus further removing this spectacular exercise from the democratic rhetoric of the prefabricators.⁴⁷

A consumerist orientation was evident to some extent in every Home of Tomorrow during this period, even those with more revo-

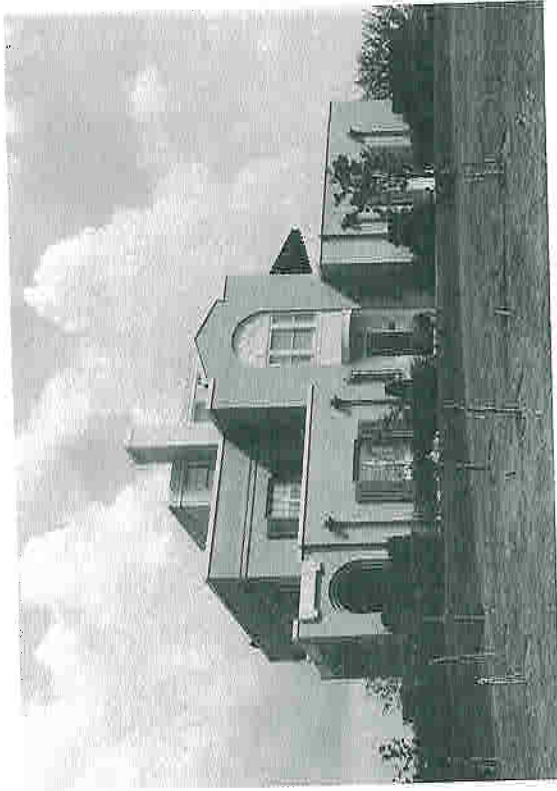


Figure 7

The Westinghouse Corporation built this "Home of Tomorrow" in 1935 as a showcase for futuristic electronic gadgetry for the household. Westinghouse Historical Collections.

lutionary intent. It should be recalled that Fuller's Dymaxion House—that altruistic vision of Everyman's dwelling—made its debut at the very crossroads of Chicago consumer society: Marshall Field's department store. At the Century of Progress Exposition, most of the demonstration houses were advertising showcases for producers of building materials, decorating firms, or department stores. Such commercialism tended to transform the houses into containers of desirable consumer items, diverting attention from them as radical experiments in design or industrial process.

This dominance of consumerism hints at a final reason for the failure of the mass-produced home to fulfill its promise. By the end of the 1930s, a sharp split had occurred between the popular perceptions fostered by avant-garde architects and their glamorous "homes of the future" and the nagging reality of the housing situation. The most thrilling homes of the future were precisely those whose future realizations would forever elude the grasp of most people. Neutra's Hollywood mansions and Keck's stunning exposition ventures were suggestive and seductive dream houses, wholly unreasonable as models for replication. The public, filled with great expectations, was un-



Figure 8
Among the more highly touted marvels of the Westinghouse "Home of Tomorrow" was the electric garage-door opener. Westinghouse Historical Collections.

doubtedly disappointed with the choices that actually became available, though these choices bore the same "home of tomorrow" label. The typical product of General Houses or American Houses looked cramped and miserly next to the suave designs of George Keck or the electrified fantasy of the Westinghouse engineers. If the public was expected to make the bold leap into the future, to become proselytes of the modernist faith, it had to be offered more than the lowest common denominator that the minimal "prefabs" seemed to embody.

Insofar as the phrase "home of tomorrow" implied a promise of personal attainment, it had a hollow ring for most Americans during the Depression. The prediction of revolution in industrial production was also a gross miscalculation. The phrase "_____ of tomorrow" gradually lost its connotations of prediction, prescription, and solution and was indiscriminately applied to everything from new floor coverings

to vacuum cleaners to "revolutionary" plumbing fixtures. By the end of the 1930s, the phrase was merely an advertising slogan, designed to stimulate buying, to condition consumers to accelerated rates of change, and to promote expectations of newness.

It was also clear by the late 1930s that future houses would not necessarily be "modern" or avant-garde in design. The Modern style was not wholly rejected; rather, it became one of several available "period styles." Like Colonial, Tudor, and Spanish houses, the Modern house wore a romantic costume, but one based not on the past but on a fantasy future. What failed to thrive in the American consumer atmosphere was not the image that the movement's leaders had fashioned but the deterministic and often alarmingly revolutionary rhetoric that had originally underpinned it.

Assertions that modernism was inevitable because of its technological and moral perfection were most frequently heard in the early years of modernism's influence in the United States, when the discourse was dominated by the more doctrinaire Europeans. By the middle of the 1930s, attempts were being made to reconcile the alien doctrines with the American character, to justify them in terms of consumerism. For example, in 1935 *Fortune* magazine (an early and loyal champion of modern architecture) praised the modern house as "the house that works," confidently predicting for modernism a bright commercial future.⁴⁸ The editors asserted that the marriage of modern form and modern (that is, highly mechanized) content would be happy and inevitable, declaring: "Modernism in America will be full of gadgets because modernism in America will be gadget's child." In other words, Americans' well-known love of household gadgetry would be admirably requited by the mechanistic modern style; gadgeteering had at last found its most appropriate arena. But *Fortune's* tautology missed the mark. The modern style did not bring with it, perforce, an equally advanced battery of household equipment, nor was the inverse necessarily true. It became clear that modernity in houses had nothing to do with avant-garde architectural style or mass production; the modern house was simply the well-equipped house. For the most part, Americans did not want machines to live in; they wanted machines to live with.

This proclivity was quickly confirmed. During World War II the most popular "home of the future" was not a house at all but only what we might call a high-tech kitchen. Three full-size mockups of the Libbey-Owens-Ford company's "Day After Tomorrow's Kitchen" circulated to department stores all over the country in 1943 and 1944. Over 1.6 million spectators "beheld what the future had in store," it

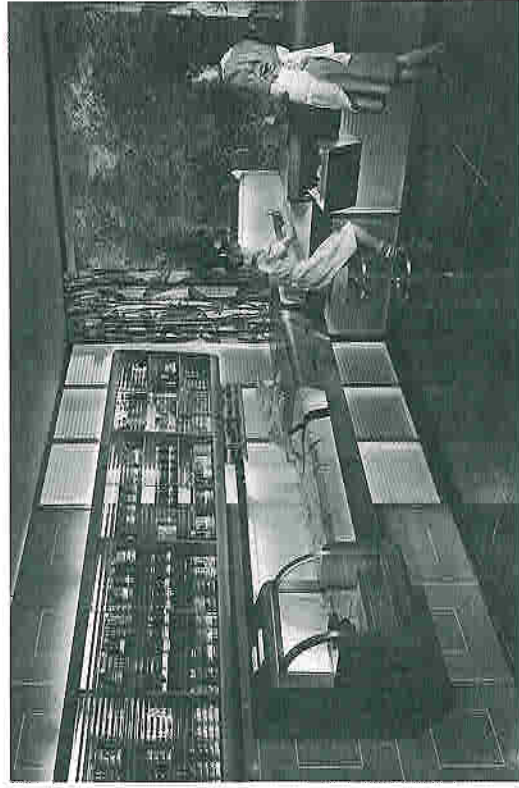


Figure 9

The “Kitchen of Tomorrow” of the Libbey-Owens-Ford Company, circulated to department stores in 1944 and 1945, promised housewives a near future of ease and luxury. Hedrich-Blessing.

the words of historian Siegfried Giedion, who probably beheld it in person while writing his seminal *Mechanization Takes Command*.⁴⁹ With its sleek surfaces, glass-walled refrigerator, dishwasher, sunken saucepans, and recessed waffle iron, the L-O-F kitchen was a tantalizing display, conditioning an eager body of consumers for the glittering prizes that awaited them at war’s end.

Designers and architects clearly were rethinking their commitment to modernism and the future of the American home, and many were repenting for their earlier futuristic excesses. Walter Dorwin Teague, one of the key figures in the revolution in industrial design of the 1930s, wrote an article in 1943 for *House Beautiful* called “Sane Predictions about the Houses You Will Live in after the War,” the clear implication being that earlier predictions about the near future of the home had been irrational.⁵⁰ In the same year, Kenneth Stowell, the influential editor of *Architectural Record*, wrote a provocative editorial entitled “The House of the Future, 1942–1952,”⁵¹ which reads like a keynote address to a convention of chastened architects. Some of his aphoristic prophecies:

The house of the future will perform the same functions as the house of the past and the house of the present . . .

The house of the future will have floors, walls, ceilings, partitions, and roofs. . . .

In appearance, the houses will reflect the desires, tastes, associations, prejudices and prejudices of their owners. . . .

Radical experiments and designs will continue to intrigue those who want to be in the vanguard of progress. Conservative designs, reflecting the best of the past, will be built to please those who prefer the familiar. . . .

The house of the future will still be a house.

If American architects and homebuyers in the 1940s adhered to familiar images, it was understandable. In those emotionally shattering years, styles that evoked a reassuring past seemed ever more important, even for houses of tomorrow. And the conservative urge continued when the war ended. When Mr. Blandings builds his dream house in the comic novel and movie of 1946,⁵² he rejects his architect’s flashy modern suggestions and opts for a classic New England Colonial design. The episode is meant to be funny, but not surprising. Mr. Blandings (the name is a giveaway) knows what he likes: a house that is tasteful, comforting, and just like everyone else’s.

In later years, new shapes of things to come emerged, each accompanied by promises of appropriateness and universality. From the curvaceous molded plastic structures of the 1950s, through the urban homesteads and rural geodesic retreats of the 1960s, through the passive-solar “cluster” homes of the energy-conscious 1970s, and on to the electronic cottages of the 1980s, “homes of tomorrow”—bright and hopeful packages of new materials, technologies, enthusiasms, and anxieties—have appeared regularly. Everyone seems oblivious to the historically low success ratio of such predictions. The “home of tomorrow” appears to be a fixture of American capitalist society, but it seems destined to be always just over the horizon.

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3. David Hounshell, *From the American System to Mass Production, 1800-1932* (Baltimore: Johns Hopkins University Press, 1984), pp. 303-330.
4. Theodore Morrison, "House of the Future," *House Beautiful* 66 (September 1929), p. 292.
5. R. Buckminster Fuller, *4-D Time Lock* (Albuquerque: Lama Foundation; originally published privately as *4-D*, Chicago, 1927). The exact chronology of the various versions of the house and the manifesto is not clear from the sources. Fuller always held that 1927 was the date of the project's creation, though he did not apply for a patent until 1928, which was also the year he copyrighted *4-D*. "4-D" refers to time, the "fourth dimension," and was Fuller's first name for the house. "Dymaxion" was a word coined by publicists for Marshall Field's department store, where the model was first exhibited publicly. The P.R. men considered the term—combining "dynamism," "maximum," and "ions"—catchier and more scientific-sounding. Fuller, fond of neologisms, obviously liked the word, and it became a kind of trademark for his entire career.
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17. Hines, *Neutra*, p. 41.
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35. Hines, *Neutra*, p. 128.
36. "Steel Shell Houses," *Business Week*, March 30, 1935, p. 16.
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