Futurama

study time
45 minutes

- An essay by Roland Marchand, "The Designers go to the Fair, II: Norman Bel Geddes, The General Motors "Futurama", and the Visit to the Factory Transformed" from the book *Design History: An Anthology*. Dennis P. Doordan (1995). Cambridge: The MIT Press.

During the 1930s, the early flowering of the industrial design profession in the United States coincided with an intense concern with public relations on the part of many depression-chastened corporations.(1) Given this conjunction, it is not surprising that an increasingly well-funded and sophisticated corporate presence was evident at the many national and regional fairs that characterized the decade. Beginning with the depression-defying 1933-34 Century of Progress Exposition in Chicago, major corporations invested unprecedented funds in the industrial exhibits that also marked expositions in San Diego in 1935, in Dallas and Cleveland in 1936, in Miami in 1937, and in San Francisco in 1939. The decade's pattern of increasing investments in promotional display reached a climax with the 1939-40 World's Fair in New York City.

Leaders in the new field of industrial design took advantage of the escalating opportunities to devise corporate exhibits for these frequent expositions. Walter Dorwin Teague led the way with his designs for Bausch & Lomb, Eastman Kodak, and the Ford Motor Company for the 1933-34 exposition in Chicago. In 1936 he designed the Ford, Du Pont, and Texaco exhibits at Dallas and three years later claimed responsibility for seven major corporate exhibits at the New York World's Fair—those of Ford, Du Pont, United States Steel, National Cash Register, Kodak, Texaco, and Consolidated Edison. While Teague won an impressive number of design contracts for 1939 on the basis of his claim to have developed an ability to create 'hit shows" for earlier fairs, the unrivaled "smash hit" among corporate displays at the 1939-40 fair was not one of Teague's creations. Rather, it was the "Futurama" of the General Motors Corporation, created by Norman Bel Geddes as his first corporate fair exhibit.(2)

Bel Geddes was unique among the major industrial designers of the 1930s in having entered the field from a background primarily devoted to theater design.(3) In contrast to Teague, whom one journalist characterized as "self-contained," "realistic," and thus a "comforting fellow to ... practical-minded business men," Bel Geddes was often viewed as an "impractical visionary." Although Bel Geddes claimed to be the equal of other industrial designers in appreciating the values and decision-making processes of practical businessmen, he avowed in retrospect that "my interest in everything in life has never been as a businessman." And, privately, he dismissed Teague as derivative and unimaginative.(4)

As the 1939 New York World's Fair approached, the contrasts and rivalry between Teague and Bel Geddes were accentuated by the long-standing competitive antagonism between their leading clients, Ford and General Motors. A year before the fair's opening, Teague remarked to a Ford official that he had been "relieved" to see the early General Motors exhibit plans since Bel Geddes had conceived a grandiose scheme having such "enormous difficulties" that it would probably never materialize as planned. He might have been further reassured if he could have witnessed the anxiety of several top GM executives as they fretted over their last-minute decision to entrust their image at the fair to the visionary Bel Geddes and then watched their exhibit costs mount to double, and then triple, Bel Geddes's initial estimate.(5)

But it would ultimately be Teague and Ford who had to reconcile themselves to running a very distant second in popularity to Bel Geddes's dramatic creation.(6) The General Motors Futurama exhibit in 1939 captured the fancy of the public and critics alike-journalists competed to find adequate words to convey Bel Geddes's "ingenuity," "daring," "showmanship," and "genius." Each day of the fair, thousands of visitors waited for hours in lines up to a mile in length for the opportunity to experience the Futurama.(7) At a world's fair at which the industrial exhibits (for the first time) outpulled the amusement zone attractions. GM's Futurama reigned supreme among the elaborate and popular corporate displays. One neutral survey of 1,000 departing fairgoers (perhaps the nation's first "exit poll") awarded the GM exhibit 39.4 points to only 8.5 points for second-place Ford as the most interesting exhibit. When asked which fair exhibit they would most like to visit again, 47.5 percent of these respondents picked General Motors as compared to 7.3 percent for second-place General Electric and only 3.8 percent for Ford.(8)

To estimate the triumph of General Motors over Ford in the popularity of their exhibits in 1939-40, and also the relative mastery of Bel Geddes over Teague and other leading designers in pleasing the crowd, is not to discount the general advance in display techniques that nearly all corporations had achieved by 1939. Teague's exhibits for Ford and Du Pont were far from failures; judged by the standards of only a few years before, they represented major breakthroughs in corporate showmanship, as did Raymond Loewy's exhibit for Chrysler. But Bel Geddes and General Motors had carried corporate public relations a significant step further than the rest.

Many corporations in the late 1930s were still only beginning to advance beyond the axiomatic notion that the way to win public respect was to (synthetically) put their factories through dioramas, working models, photo-murals, and actual

working exhibits of segments of their production processes. The public's esteem and sympathy could best be cultivated, production-minded executives had assumed, by displays of their impressive processes of manufacture. General Motors itself had constructed an operating Chevrolet assembly line as its exhibit at Chicago in 1933-34. As they moved, often reluctantly, toward more crowd-pleasing displays during the 1930s, corporate exhibitors began to merge their factory-oriented "educational" efforts with elements of pure entertainment. Under the guidance of professional designers, many moved to simplify and enliven their stories of production, even resorting to stage comedies or cartoon-like animations.(9)

In the GM Futurama, Norman Bel Geddes fell in line with the trend toward making entertainment dominant-but with a significant difference. He discovered a way to involve visitors experientially with the corporation—not so much by urging them to witness the difficulties and triumphs of its processes of productions, but rather by offering them a chance to share its wider social and technological vision. Guests at he GM Futurama found themselves entertained even as they shared a serious look at the nation's future-through the eyes of General Motors. In the process, Bel Geddes helped revise what it would mean for fairgoers of the future to accept that time-honored invitation to "come visit our company." Bel Geddes's Futurama transformed that invitation. Corporations would henceforth entice visitors not to "tour our factory," but instead to "share our world."

Although General Motors proved adventurous enough to embrace Bel Geddes' plan, it was clearly the designer rather than GM executives who conceived this public relations breakthrough. Bel Geddes had essentially devised all the elements of the Futurama before he persuaded General Motors to adopt the scheme; in fact, as late as the beginning of 1938 he had nearly succeeded in peddling the idea to another corporation. And Bel Geddes was so intent upon casting himself in the role of visionary planner that he may not have seen the full ramifications of his innovation in visitor involvement. To appreciate the elements of theater, crowd psychology, and social ideology that Bel Geddes managed to unite within the Futurama exhibit, we need first to examine Bel Geddes's vision for the project and the circumstances under which he devised its various elements.

In 1932, only a few years after announcing his transformation from stage designer to industrial designer, Bel Geddes had published a daring and prophetic book he titled *Horizons*. In addition to proclaiming the coming triumph of true streamlining in all modes of transportation, the book showcased designs for such ingenious proposals as a revolving, floating airport in New York harbor, an under water restaurant, an expendable concentric-ring factory designed to enhance employee welfare, an auditorium for staging Dante's *Divine Comedy* with a cast of hundreds and an audience of five thousand, and an open-air cabaret with long runways that extended the stage to enable performers to "bring the entertainment into intimate contact with the audience." As he assumed a new identity as industrial designer, Bel Geddes derided what he considered the inhibiting traditions of the theater, confining his treatment of that field in *Horizons* to a single chapter which he titled, with inflammatory intent, "Industrializing the Theater." At every opportunity, Bel Geddes proclaimed the demise of the old "peep-show" relationship of the audience to the traditional proscenium stage in favor of "a sense of unity, intimacy and audience-participation." It was precisely this zeal to remove all barriers between audience and performers that he had sought to embody in such designs as the open-air cabaret with stage runways (figure 1).(10)

In *Horizons* Bel Geddes also appropriated the role of urban planner by advocating that all the buildings on each 15- block segment of current cities be replaced by a single skyscraper occupying approximately one full block in width and depth and rising as much as 150 stories. The vacated 14 blocks could then be devoted to parks, allowing the city greater access to light and air. Even small towns, he suggested, would eventually discover the wisdom of consolidating all their little businesses into "one towering type building in the center of town".(11) Such a development would emerge naturally within a society increasingly steamlined for speed and efficiency. In such a world, no artificial horizons would limit the vision and work of the industrial designer.

As Bel Geddes continued to explore the potentialities of streamlining and speed in the 1930s, he began to pay attention to the limitations that the nation's antiquated highway system placed in the way of a rational, streamlined mode of transportation. The impetus for another grandiose Bel Geddes's project appeared in 1936 in the form of a commission from the J. Walter Thompson advertising agency to provide a number of sketches outlining possible solutions for traffic congestion. The drawings would provide the basis for a Shell Oil Company advertising campaign in 1937.(12)

In his typical manner, Bel Geddes escalated the project both in scope and theatricality. He and his staff voraciously devoured data on population trends and city planning. They consulted with Miller McClintock, director of Harvard University's Bureau of Street Traffic Research, and addressed some of the questions provoked by contemplations of the city of the future: how would water and elevator systems work for buildings of 150 floors; might skyscraper roofs be used for plane landings; would the movie houses of the future be located within the central skyscrapers; could poor people afford to exist in this transformed environment? As he took upon himself the serious task of devising a comprehensive scheme incorporating superhighways and city planning, Bel Geddes also convinced Shell and J. Walter Thompson to finance the building of an elaborate scale model of a city of the future to dramatize the grand plan. The model would introduce the public to this idealized, streamlined future through the pseudorealism of close-up photographs of his model of "transportation, architecture, [and] parkways as they could be in 1960."(13)

Bel Geddes's scale model, and the accompanying explanations in the Shell ads, adopted the super-skyscrapers plus the parks and playgrounds imagery of *Horizons* (f*igure 2*). He linked these with a system of "metropolitan express highways" and elevated sidewalks to separate pedestrian and motor traffic. Controllers stationed in towers and atop bridges would employ radio control to monitor the flow of traffic. Bruce Bliven, who reviewed the Bel Geddes model for New Republic, marveled at the striking illusions of depth and distance obtained through the "masterful photography" of the model. "Vague plans," he suggested, were afoot to display Bel Geddes's alternatives to modem traffic systems at the coming New York World's Fair.(14)

Although much of his vision of a magnificent, rationalized, transcontinental highway system with lanes for speeds up to 100 miles per hour was not incorporated into the Shell advertising campaign, Bel Geddes had glimpsed himself as a designer and planner on a grand scale. He adopted the stance of an adversary to the irrationalities and resulting inefficiencies and dangers of present conventions in highway building and as the champion of rational engineering and mistake-proof technologies. A system of 14-lane highways, on which drivers would respond to messages from radiocontrol towers and find their way illuminated at night by an electric-eye controlled system of indirect lighting, would eliminate most of the accidents resulting from "human failure." A two-tiered system of city streets, with all pedestrians separated from auto traffic, would eliminate urban traffic congestion. A system of widely spaced, immense skyscrapers would allow for more health-promoting open space within the cities (*figure 3*) and the speed and efficiency of the highways into the city would allow more people to live in peripheral towns and suburbs, affording workers a more wholesome suburban life.(15)

Figure 3
Norman Bel Geddes, Model "City of Tomorrow" for Shell Oil, 1937.
Photo unattributed

Thus, Bel Geddes had already conceived and modeled the serious, substantive content—and much of the social-technological message—of what would become the GM Futurama well before the General Motors Corporation acquired any connection with the project. In fact, during 1937 Bel Geddes futilely attempted to interest both GM president William Knudsen and GM sales manager Richard Grant in having his scheme developed as a fair display, only to suffer repeated snubs and rejections.(16) This situation reflected Knudsen's conservative satisfaction with the operating Chevrolet assembly line exhibit that had been successful for GM (and for Knudsen, then head of the Chevrolet division) at Chicago in 1933 and 1934.(17)

Despite GM's early disinterest, late in 1937 Bel Geddes had begun to envisage the full theatrics and technologies of a display that would not only vastly expand the Shell model but would transform the exhibit into a dramatic new experiential mode of corporate public relations. It is not clear exactly when Bel Geddes conceived the idea of moving visitors over and through a model of the highways and cities of the future rather than having them observe the model from several fixed "overlooks" (undated "preliminary sketches" for the project indicate lookout platforms from which stationary observers would look down upon the model) and when he determined that chairs mounted on a moving conveyor belt would be technically feasible. But it is clear from one set of blueprints that he had formulated the plan well before he finally gained GM's sponsorship in early 1938.(18) In the wake of this conception, Bel Geddes raced forward in a rush of creative ingenuity to surround his model with the theatrics of visitor manipulation that would turn a serious, appropriate display idea for an auto manufacturer (but one distinctly lacking in potential sales effectiveness) into an entrancing corporate public relations triumph.

By the beginning of 1938 Bel Geddes had persuaded the Goodyear Rubber Company to make a tentative commitment to employ some version of the highways-of-the-future display for its exhibit in New York in 1939. Suddenly, in February 1938, Goodyear decided not to participate at all in the New York World's Fair. At this eleventh hour, Bel Geddes mounted a desperate siege of General Motors in a campaign to salvage his exhibit idea.(19) It was now less than 15 months before the New York fair would open. General Motors had already decided to feature an updated model of the Chevrolet assembly line that it had used in Chicago in 1933-34. This focal exhibit would be supplemented by an expanded research display drawing upon the highly effective "Parade of Progress" road show that the GM Research Laboratories had sponsored on national tour during 1936 and 1937. These elements nicely reflected the special biases of production-minded GM president William Knudson and of Charles Kettering, head of the GM Research Laboratories and the corporation's most heavily promoted public figure.(20)

In his unpublished autobiographical manuscript, Bel Geddes tells the story of his ultimate triumph in a desperate "mission impossible" against an already-approved plan at General Motors. During a dramatic hours-long showdown meeting with 40 GM executives, Bel Geddes later recalled, he faced down Knudsen a Kettering through a spontaneous display of wit, bluff, and quick thinking.(21)Undoubtedly Bel Geddes's version of the story owes more to his extensive theatrical background and melodramatic imagination than to a realistic assessment of decision-making GM. But what was most important was that he succeeded in persuading the corporation to commit itself to his exhibit *at so late date* and that he did so primarily

with a *negative argument*: did General Motors dare to spend $2 million on its planned recreation of the 1933-34 assembly line exhibit only to "admit that it hasn't had a new idea in five years"?[22]

In taunting and cajoling General Motors into this belated change of plans, Bel Geddes created severe time pressures for his project. But he also gained substantial autonomy in shaping the Futurama. It was already early in May of 1938 when Genera Motors signed a contract with Bel Geddes for a building and display that was to open in April 1939. Knudsen and Grant were so fearful that Bel Geddes's complex project would not be complete in time that they hesitated to interfere with his work. Moreover, as Bel Geddes later gloated, "the thing [the Futurama model] was so far outside their field, so foreign to their customary executive activities, that in the early stages about all they could do was stand around and hope for the best." Eventually, Bel Geddes's obsessive attention to every detail of construction seemed to win him Knudsen's empathy as a fellow "production man."[23]

Above all, Bel Geddes owed the extent of his autonomy to the fact that he had ultimately gained entry into GM by first persuading Paul Garrett, GM public relations director, and Alfred P. Sloan, Jr., past president of GM and chairman of the board, of the virtues of his adventuresome concept. According to Bel Geddes's account, Sloan liked the idea of "something to catch the public's imagination beyond mere merchandising."[24] Both Sloan and Garrett had viewed better public relations and the effective delivery of a subtle anti-New Deal political message as a major corporate priority since the mid-1930s. Their sponsorship of the Bel Geddes project within General Motors meant that Bel Geddes, in the process of gaining GM's formal approval, had already effectively overcome the fundamental resistance to his approach by the more sales-oriented and production-oriented among GM executives. He was thus free to concentrate on an exhibit that would cultivate goodwill and appreciation rather than promote current sales. Since goodwill was, in a certain sense, "priceless" to a giant corporation, Bel Geddes gained an advantage in his pursuit of perfectionism in the execution of his design. The extent to which he managed to retain control and implement his own grand vision is best suggested by his success in bringing General Motors along in support of his ever-expanding budget. Originally contracted for a sum of $2 million, Bel Geddes's Futurama eventually cost General Motors over $7 million.

Bel Geddes easily aligned his conception for Futurama with General Motors's interests. An animated model of a scientific highway system of the future, he assured General Motors, could demonstrate the need for vastly expanded highway facilities, promote the sale of more automobiles, and display GM's concern for highway safety. It could convey the corporation's optimism about the capacity of private industry to promote prosperity and create new jobs, thus expressing, in a positive way, the bitter antagonism of GM leaders toward President Roosevelt and the New Deal. And it would suggest the modernity, benevolence, and forward-looking social vision of the corporation.[25]

With his own vision thus comfortably fused with GM's public relations needs, Bel Geddes proceeded with the detailed design and construction of his future world. His venturesome plan called for an immense, animated model, on a scale of one inch to 200 feet, of a major segment of the nation, as of 1960. The model would cover 35,738 square feet and contain several million structures and more than a million trees. When another exhibitor sent out a promotional brochure in November 1938 forecasting its completion for the fair of the "biggest model in the world" with "1,000 individually designed buildings," Bel Geddes wrote his wife in glee, "Wait until they hear about this job, which is ten times the area." "In our principal city alone," he added, "we have more than 2,000,000 individual buildings." Not only was the model to feature attention-grabbing motion through extensive animation, but the visitors themselves would move over and through the model rather than observing it from some static vantage point. Six hundred moving chairs on a conveyor belt would transport them on a "serpentine, up-and-down route" over the vast landscape and cityscape of the model at a height and speed that would simulate a low-level airplane flight. Thus, the persistent quest of fair designers to create a feeling of participation for their audiences found a new realization in this opportunity for visitors to seemingly *enter and experience* a world created for them by the corporation (*figure 4*). [26]

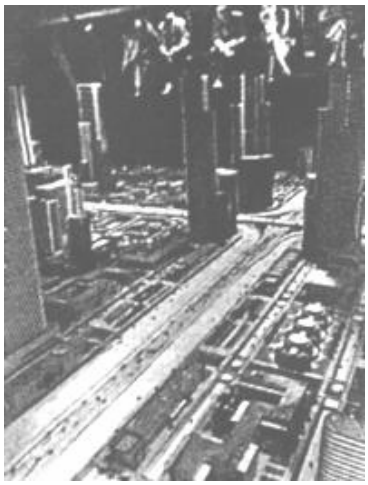

Figure 4
Norman Bel Geddes, GM Futurama exhibit, 1939
Photo unattributed

And it was nothing less than the experience of actually visiting a new "world" that Bell Geddes sought to create. Drawing

upon the urge to immerse his audience in a total environment that had emerged during his years of theater design, he employed every stage technique of lighting, spatial organization, camouflage, surprise, and scenic trickery to induce in visitors the kind of emotional response that he had previously sought in theatrical productions. Just as he had insisted upon completely refashioning a theater interior to convert it into a medieval cathedral for a production of the play *The Miracle* in the mid-1920s, so he carefully plotted the visitors' entrance into the 1939 Futurama so that they would feel the sense of having been transported into a different world-the America of 1960. And just as critics had recounted their awe at encountering the hush and majesty of the interior of Bel Geddes's theatrical cathedral ("I rubbed my eyes in amazement. Who was I, and where was I? . . . I was part of parcel of that triumphant medievalism"), so they were to marvel over the experience of finding themselves suddenly borne into Bel Geddes's future.[27]

In 1937 an advertising agency newsletter seeking to comment knowingly on current trends noted that industrial designers rather than architects had suddenly gained control over the design of fair buildings. "The industrial designer," it explained, "first plans the exhibit and then clothes it in an appropriate building." [28]Bel Geddes proceeded exactly along that line. With the design of his central exhibit in mind, he designed the GM building with imposing, unembellished, curved surfaces that would look up to convey "a sense of power" yet conceal the actual shape of the Futurama with its massive surprise ending.[29] The "stark simplicity and mystery of the building" and the lure of the winding ramps leading up to it would "intrigue" visitors into entering the exhibit, Bel Geddes predicted. As one of his staff observed, there was no way of guessing from the exterior of the building what it might contain. But it reached out with a giant curved "hook" to scoop in the passing throngs who made their way up gently curved ramps to disappear into a mysteriously dark slot of an entrance (*figure 5*).[30]

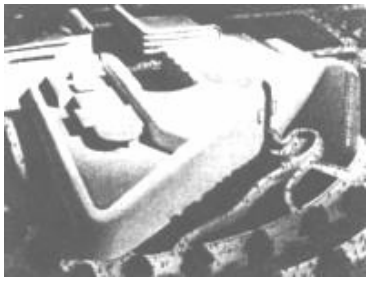

Figure 5
Norman Bel Geddes, Model for GM Futurama Pavilion, 1939
Photo unattributed

Once the visitors crossed from the bright outdoors through the almost-hidden entrance, they descended sloping ramps with a low level of illumination so as to accustom their eyes to darkness. Soon they found themselves immersed in the "subdued twilight" of the seemingly boundless "Map Lobby." Bel Geddes, renowned for his lighting innovations for the stage, designed this room with diverging walls and an immense, 60-by-100-foot map that curved back high over the spectator. Bel Geddes had remarked years earlier, with regard to stage design, that "lighting can produce a semi-hypnotic influence over an audience." In the Map Lobby he had sought to realize this effect. He surrounded the huge map with a misty "gray blue tone" of illumination that, together with the diverging walls, gave visitors the feeling of not being in a room at all but instead of simply gazing out into limitless space at a map suspended in the midst of the sky. As one reporter described the scene, the "thousands of pilgrims" descending the ramps looked like creatures in a far-off land bound for some magic shrine." The masses of dark figures moving down these same "zig zag luminous ramps" prompted another reporter to imagine a scene from Dante."[31]

As the visitor experienced the solemnity of high ceilings, the eerie blue-gray light, and the illusion of gazing out into limitless space beyond the great map, "a quiet, intimate voice—as though of a friend walking at his shoulder"—explained the meaning of the changing lights on the map. Superimposed over an illuminated map display of the nation's main cities and waterways, the first projection, in "red electric bands," highlighted the highway system of 1939. The lights then switched to reveal the projected traffic congestion by 1960, and then changed colors and configurations again to outline the solution—a future network of superhighways. At this point, suitably readied for the dramatic visualization of this solution, visitors were ushered into moving chairs that would carry them on a relaxed, 15 minute serpentine ride over a portion of the nation of the future. In the theory of Bel Geddes's design, they had acquired both the mood and the information that would prepare them for a dramatic opening curtain on a pageant in which they would ultimately play an active, participatory role.[32]

To complete the stratagem of providing the visitor with an intense, controlled experience Bel Geddes arranged synchronized sound equipment for each chair through which "a quiet authoritative voice at his shoulder" served as a private guide and mentor for each individual spectator. This "soft speaking," "intimate" voice was intended to augment the visitor's sense of having been invited to share the exciting world of a friendly and benevolent sovereign.[33] As the unseen voice invited each visitor to "come tour the future with General Motors," one reporter recounted, "you glide into a black tunnel, swing miraculously around a corner, and the World of 1960 is spread before you ... in dazzling lights." [34] Even the truculent critic Stuart Chase was enthralled by the spectacle that Bel Geddes had designed to greet his audience at this "opening curtain" to the Futurama:

> [S]uddenly the world of 1960 opens before you, reaching over hill and dale, field and village, to a far horizon. You know that it is all a model ... but the effect is very real. Cows are grazing in the pastures.

> Blossoming fruit trees in immaculate patterns cover whole hillsides. Crop lands are plowed on the contours ... Barns and silos are streamlined.

Meanwhile, the voice of the visitor's "private guide" coached the response by intoning, "The world of tomorrow is a world of beauty."[35]

As visitors acclimated themselves to this new world of 1960, Bel Geddes introduced a narrative plot to guide their comprehension. The audacious technique of moving the audience through the exhibit provided, in itself, a major advance in solving one of the central problems in exposition displays—how to control the flow and attention of visitors so that they could be told the corporation's story in a focused and sequential way and at a pace determined by the company. To this particular structured control, Bel Geddes added a story-line, physical "blinders," and rotation of the chairs to shift the spectator's line of vision—all to insure the desired pattern of audience attention. By controls on the visitors' line of sight, by the eye-catching motion of a particular vehicle in the initial rural panorama, and by promptings by the unseen voice, spectators were induced to follow the progress of a certain truck as it pulled out of a farmyard, traveled a country road, and then entered the superhighway system.[36]

From this point, the moving chairs carried visitors over the route of the massive highway that such a truck would follow in the world of the future— on a 14 lane superhighway, with separated lanes for speeds of 100, 70, and 50 miles per hour, across valleys, mountains, and suburbs toward its destination in a spectacular city of tomorrow (*figure 6*). Along the way, as they experienced "the sensation of flying, now high, now low" over the panorama of the future, they spied huge airports of innovative design, futuristic farms and barns, and thousands of cars in motion on the highways. After nightfall (accomplished by lighting effects) they crossed over "a steel town with Bessemer furnaces firing and glowing in the sky" and an amusement park (with animated merry-go-round and huge Ferris wheel) from which they could hear "boys and girls shrieking with glee on a pretzel-like skyride." There's fun and merriment in this word of tomorrow," declared the voice of the unseen guide (*figure 7*).[37]

Figure 6
Norman Bel Geddes, GM Futurama exhibit, 1939
Photo unattributed

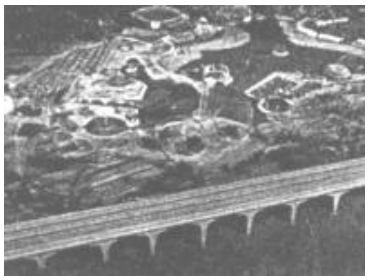

Figure 7
Norman Bel Geddes, GM Futurama exhibit, 1939
Photo unattributed

With obsessive attention to detail, Bel Geddes sought verisimilitude in every detail of the model. He even contracted with Eddie Rickenbacker, famed World War I pilot, to fly a dozen of his staff members over a portion of western Pennsylvania (where, incidentally, construction was beginning on an innovative turnpike) so that they could observe exactly how certain features appeared and what level of detail was visible from a low-flying airplane at various heights. When staff members noted that from 500 feet they could see cows "lashing and swinging their tails" and a man throwing food to chickens, Bel Geddes insisted on including animations of such "human interest" details in his Futurama design. He developed the means to simulate the spray of waterfalls (by combining tiny water jets and air jets), to include airplanes in flight with their moving shadows visible on the ground, and, by using chemical vapors, to create low clouds that would "cling to mountain sides." To insure proper execution of his subtle lighting effects, he insisted that General Motors employ "the best theatrical illumination engineers" rather than regular Westinghouse or General Electric technicians.[38]

The success of the GM Futurama owed much to the way Bel Geddes combined a grand vision with scrupulous attention to realistic detail. But his design contribution to corporate public relations stemmed more fundamentally from his theater-derived strategies of audience manipulation. The 600 "easy chairs" on his serpentine conveyor belt were designed with wide "wings" extending forward from the back of each pair of chairs on each side to severely limit the visitor's peripheral vision and insure that his or her attention was focused within a narrow, rectangular field directly ahead (*see figure 10*). [39]To this stringent containment of audience attention Bel Geddes added both the gentle guidance of the unseen voice and the less discernible control of lighting effects. Bel Geddes had pioneered the use of quick shifts of lighting and visual diversions to accomplish scene changes without the closing of theater curtains.[40] Now he brought the same subtle visual *legerdemain* to the service of creating a total environment for the visitors to GM's future world and to the molding of the sequence and content of their perceptions.

But, above all else, he brought his audience *into* the drama of the future, emotionally and physically. In his tirades against the restrictions of the proscenium stage, he had even gone so far as to try to envision how actors could move "through the audience" or even pass over its head.[41] Eventually, he had discovered how to enable the audience to "move through the stage setting and participate in the "play" itself. Nowhere was this more dramatically accomplished than in the "surprise ending" that Bel Geddes provided as the climax to his propagandistic drama of the future, a climax that raised the entire occasion onto a whole new plane of experience.

After gliding over a massive city (modeled upon St. Louis), divided in such a way as to contrast the "old city" of 1939 with the spectacularly futuristic architecture and open space of the city of 1960, the spectators on the moving chairs were brought down closer to one small segment of the new city, a particular intersection toward which the narrator directed their attention. Here they could admire from on high, yet in full and explicit detail, a rational new mode of urban planning in which pedestrians and auto traffic were segregated onto different street levels. "On the elevated sidewalks, " as Bel Geddes described the visitors' entrancing vision at this moment, "the city crowds are walking, gazing in the shop windows, lounging on the building roof gardens. Children are playing in the parks. Cars are moving in the streets" (*figure 8*). [42]

> Then came the climax of the ride. As Bel Geddes described it: Suddenly the spectator, in his chair, is swung about! He can scarcely believe his eyes. He is confronted with the full-sized street intersection he was just looking down on. He gets out of his chair and becomes a part of the crowd. [43]

No longer "a spectator looking at an animated scale model," the visitor viewed "the city intersection again, this time as the real thing" and became a 'pedestrian projected twenty years forward into the heart of a great city." As Folke Kihlstedt has effectively described the impact of this moment, the intersection was 'more than a small-scale model; it was a full-scale fragment of the new reality ... an embryonic cell for a yet unborn world." Visitors could walk across the elevated sidewalks, look down on a plethora of GM cars and trucks simulating traffic on the streets below, gaze into the shop windows, and enter any of the large buildings on the four corners of the intersection to see additional General Motors exhibits. (GM's "A Fair Within a Fair" diagram (*figure 9*) cut away the roof of the building to reveal the path of the visitors through Futurama from point B, the surrealistic map lobby, to point E, where the visitor debarked from the moving chairs to enter the intersection of the future.) To commemorate this time-warp experience all visitors received pins proclaiming "I have seen the future." The phrase was effective, but clearly it was too modest in its claim. They had not only seen GM's future, they had seen it "come to life" and had actually "*walked around in it!*" [44]

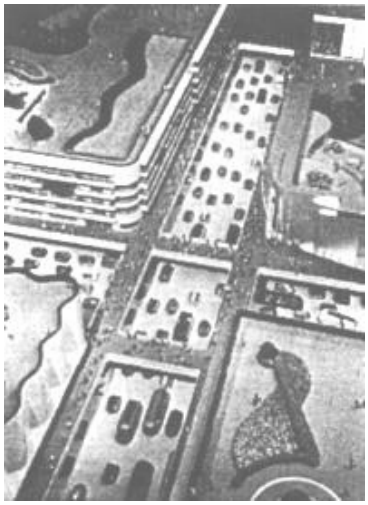

Figure 8
Norman Bel Geddes, GM Futurama exhibit, 1929
Photo unattributed

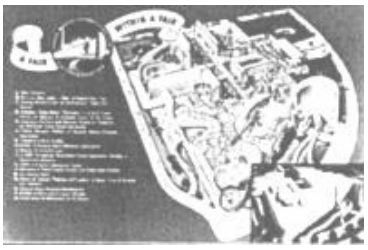

Figure 9
Diagram of GM Futurama exhibit, 1939
Diagram unattributed

By imbuing the industrial exhibit with all of his theatrical imagination, Bel Geddes sought to realize for General Motors the premise that he had set forth seven years before in *Horizons*: "There is no more emphatic way of bringing an idea to the attention of a mass audience and doing it with great force and conviction than in the theatre." (45) In this case, the "idea" was an amalgam of precepts and associations that embodied GM's strategic planning, ideology, and desired public image. General Motors was a supremely "modern" corporation, one in which an emphasis on scientific research obviously prepared it to plan intelligently for the future. Bel Geddes retained Charles Kettering's plan for an updated repeat of a marvels-of-science show and exhibit based upon the work of the General Motors Research Laboratory, positioning this "casino of science" in one of the buildings that visitors were encouraged to enter as they walked around the full-scale intersection of 1960 (*figure 10*). Now that many manufacturers wanted to emphasize their research laboratories as a way of associating themselves with modernity, science and an orientation toward the future, the 1939-40 General Motors exhibit logically employed a magnificent vision of the future to lead visitors toward the display that would demonstrate how the GM research laboratory kept the company future-oriented. (46)

Figure 10
Norman Bel Geddes, GM Futurama exhibit, 1929
Photo unattributed

General Motors also counted on its display of benevolence and expertise—in placing an entertaining and educational vision of the future before the public—to confirm the principle that large private firms, not the federal government, were best suited to lead the public into an ideal future. In his initial presentation, Bel Geddes promised GM executives that the exhibit would offer "direct proof to the public" of "the needs of our industrial economic, system" and GM's public relations director, Paul Garrett, concluded after the first year that the Futurama had served as "an object lesson in PROGRESS." The sound track's "authoritative personal guide" reminded visitors that the exciting future they were experiencing had been enriched not only by "new concepts in science and research" but also by "a new understanding of the true function of industry as an integral part of the nation's social and economic life." If that tribute to free enterprise was vague and muted, the GM Press Guide proudly quoted the statement of GM chairman Alfred Sloan that for industry to move forward toward this future it was necessary to "destroy the economic barriers that now prevent the essential expansion of enterprise ... and that repress the spirit of individual initiative."(47)

More concretely, the Futurama propagandised for public support of massive and expensive superhighways that would assure an expanding market for automobiles. As Garrett touted the exhibit to fellow GM executives, "It may well mark the beginning of a new era in road construction which will greatly stimulate the use and sale of cars, at a time when a saturation point may have been reached." (48) In fact, the creation of "a public enthusiasm for improved highways" was a more likely result of Futurama than the impact of its vague message about free enterprise. And the juxtaposition of these two messages, as Walter Lippman shrewdly pointed out, revealed certain ironies. Had not General Motors "spent a small fortune to convince the American public that if it wishes to enjoy the full benefit of private enterprise in motor manufacturing, it will have to rebuild its cities and highways by public enterprises"? Bel Geddes's vision of highway planning necessitated massive city planning and even regional planning. The scope of government planning and control involved in a project of this scale would undoubtedly have appalled the GM executives.(49)

Smaller ironies also emerged from Bel Geddes's compromises of his design principles in the service of popular theater. He carried his vision of a rational streamlined future into the design of nearly every aspect of the Futurama, from the suggestive contours of the building to the shapes of individual model automobiles. The sound track exhorted visitors to "(s)ee how the beautiful landscaping and architectural features conform to the modem engineering of the highways." At one point Bel Geddes instructed his leading assistant to add more airports to the model to suggest the "tremendous air activity" of 20 years hence and insisted upon "complete and ultimate streamlining" in the models of all transportation

vehicles.[50]

But the designer's principled rationale for streamlining had rested upon an esthetic and informational theory of visual candor: things should look exactly like what they were and should visually indicate the purpose they served. Trickery, camouflage, exaggeration, and visual deception seemed to have no place in such a commitment to forthrightness. Yet in Futurama, Bel concluded, the desired, emotional audience response must arise not only from the beauty of forms aligned with their purposes but also from the kinds of deception routinely justified in the theatre to add to the spectators' pleasure. Bel Geddes and his staff, therefore, enthusiastically rejected "naturalism" as a standard and agreed to "increase the speed of everything" disproportionately in order to gain the effects of more strikingly visible motion.[51]

In a certain sense, of course, Bel Geddes was still applying the conventional modernist principle of form follows function.[52] The "function" of the Futurama was to give pleasure (especially esthetically) and to harness the "momentous power and inspiration" possible within theater to the public relations goals of General Motors and the vision of a modern national highway system.[53] All of the theatrical devices of visual deception, audience control, manipulation of attention, and exaggeration might thus be considered acceptable as contributions to those ultimate purposes. In that sense, Bel Geddes's industrial designs foreshadowed a more unreserved commitment of industrial designers to the incorporation of potential customers' anticipated (or desired) emotional responses into product designs.[54]

Bel Geddes did acknowledge the costs to his ostensible ultimate goal of effective public education that his drive for maximum theatricality had incurred. From the outset, General Motors had worried about the 100 mile-per-hour lanes on Bel Geddes's highways. Wouldn't this feature open GM to charges of irresponsible disregard for highway safety? Bel Geddes was adamant in defence of his design. He counteracted the "supersensitivity" of the auto manufacturer by insisting, both privately to GM and publicly on the Futurama sound track, that his system would actually eliminate 98 percent of all accidents. Moreover, radio controllers would hold all motorists to within five miles per hour of the designated speed for their lane and the dangers created by the "Road Hog" and risky passing attempts would disappear.[55]

At one point Bel Geddes bemoaned the fact that the emphasis on speed "threw somewhat out of focus the main theme of the great undertaking" and at another that the pace of flow through the exhibit had been too rapid really to satisfy serious visitor interests. He acknowledged in his *Magic Motorways* book of 1940 that the Futurama ride had been far too superficial to convey the full substance of his highways vision. ("There was much more to see, and no time to see it. There was much more to explain, and no time to explain it.") But the compromises of pace and substance to serve entertainment and theatricality had been fully intentional. As Bel Geddes had counselled GM, the exhibit "although *scientific* and *educational*" would emphasize "the *entertainment* aspects." The tempo of the ride conformed to Bel Geddes's primary goal- to "provide the spectator with constant *thrills* and *entertainment* and IN RESTFUL COMFORT." And some of the choices in content stemmed from their promotional potential. As he confided to one interviewer, "If I had described the new highway as accommodating three lanes of traffic at 20, 30, and 40 miles per hour, it would have caused no indignation. It also would have caused no headlines.[56]

Within only a month of the fair's opening in April 1939, it was clear that Bel Geddes's Futurama qualified as the obvious "headline story" in any news about the fair. People stood in lines for hours to gain a place among the 28,000 visitors who could enter the Futurama each day.[57] Although the emphasis on speed may have contributed marginally to the exhibit's success, its stunning popularity clearly derived from more basic elements in its design. By 1939, all of the designers for corporate fair exhibits were seeking that optimal blend of motion, simplicity, spectacularity, and visitor participation that recent observations indicated would be the key to success. Bel Geddes incorporated all of these elements in his design. But the quality that most strikingly set the Futurama apart from competing exhibits lay in its dramatic new techniques of inducing an aura of experiential visitor participation.

These techniques began with the sound system, where the individual speakers, synchronized with the progress of each chair, enabled Bel Geddes and General Motors to tell their story in a conversational tone and avoid the negative visitor reactions to "being talked at through loudspeakers" that surveyors had noted in earlier fairs. As a Bel Geddes lieutenant explained to Richard Grant of GM, it was crucial to perfect the sound system since "the speaker's voice should be very soft with excellent quality and with the sound source apparently close to each individual" to give the effect of "talking individually to each spectator." In many of his descriptions of the ride, Bel Geddes used the word "whispers" to suggest the intimate quality he believed he had achieved in the voice of his mass produced guide." The New York *World Telegram* confirmed his success by referring to the unseen voice as a "quiet, intimate voice, tensely dramatic, yet direct and almost confidential."[58]

The "easy chairs" carried by conveyor belt were also crucial to the sense of participation. Significantly, in its lessons for the future exhibits, the system of moving chairs also solved the problem of maintaining extensive control over the visitor's path, rate of movement, line of sight, and focus of attention. As one of Bel Geddes's staff members later emphasized, " You will remember that these were very comfortable moving chairs that not only permitted, but necessitated, the viewing of the model in the correct sequence and timings."[59] Moreover, the moving chairs did this in synchronization with the verbal guidance of the unseen voice and the controlling qualities of ingenious lighting effects. Moreover, the chairs answered one problem consistently noted at previous fair exhibits, the recurrent tiredness of visitors, by devising a means to hold their attention while affording them "restful comfort (*figure 11*)". And, if all of these devices did not fully create an encompassing "total environment" for the visitor/participant, the climatic emergence into the full-scale city intersection of the future represented Bel Geddes's ultimate theatrical trick to induce his audience "not merely (to) see the events,…(but to) *experience* them."[60] With theatrical imagination, he had enlisted the spectator's desire for vicarious participation and given them an opportunity, from a vantage point of comfort and safety, to involve themselves in a time-

warp experience more vivid than any that Edward Bellamy or even H.G. Wells had evoked. In the words of one drama critic, he had combined for his audience "the thrills of Coney Island with the glories of Le Corbusier."[61]

Figure 11
Norman Bel Geddes, GM Futurama exhibit, 1929
Photo unattributed

Given such accolades, it is hardly surprising that the demise of the Futurama after the closing of the fair in 1940 was deplored by many observers and, for a time, desperately warded off by Bel Geddes through a series of schemes for preservation or reincarnation. Encouraged by the letters of "hundreds of starry-eyed visitors," including one who lamented that its loss would be comparable to that of a Shakespeare play or a Rembrandt painting, he first proposed turning it into a caravan display, in which 44 trucks would transport it to shifting display sites around the country. On second thought, he conceived a more dramatic device to insure its continuing life and influence. It could be mounted in a giant Zeppelin that would touch down at various of the nation's cities (*figure 12*).[62]

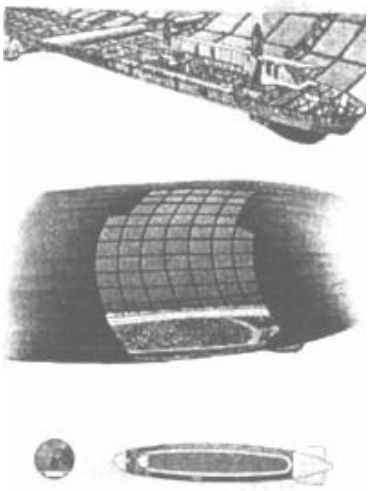

Figure 12
Norman Bel Geddes, Plan for a Zepplin to carry Futurama exhibit around the United States, 1940
Drawing unattributed

Employing another approach (first in 1940 and later at the beginning of the 1950s), Bel Geddes unsuccessfully implored GM leaders to erect a "General Motors Consumer Building" (actually, in Bel Geddes's phrase, "public relations center") in downtown New York City with the Futurama preserved (or re-created) as a multilevel exhibit. Visitors could tour a version of the Futurama housed in this building by taking an elevator to the top floor and then letting the tow of downward-sloping ramps carry them through the sequential stages of the exhibit.[63] The actual legacy of the Futurama, eventually became apparent in the post-war era in the design of amusement park features and corporate industrial exhibits. It was significant that General Motors did not flinch from the implication that it had not had a new idea in 25 years when it recreated a "Futurama" for the 1964-65 World's Fair. To this day, the corporate exhibitors at Epcot have departed little from Bel Geddes's paradigm of the modern public relations exhibit, either in concept or in basic technique.

Even with Bel Geddes's enhanced techniques, it was the decisive shift from the concept of "tour our factory" to that of "share our vision" that represented the most significant impact of the Futurama. It is difficult to imagine, for instance, that Bel Geddes's exhibit for General Motors in 1939 would have enjoyed anything like its actual popularity had it transported visitors on an entertaining and educational tour through a model of a General Motors factory. And what of the surprise ending, which not only transported Futurama visitors into a life-sized segment of a world of the future but placed them alongside showroom windows where they could comfortably imagine themselves in the role of consumer? By contrast, a moving chair exhibit of a model of GM production lines would have hardly gained an equivalent effect if it had suddenly deposited visitors on a full-scale factory floor, with no evident role for them in play in such an uncomfortably alien, albeit contemporary, world.[64]

Thus the success of Bel Geddes's design lay in concept as well as technique. He had escaped the continuing legacy of the factory visit. Even for Bel Geddes, this escape may have stemmed partly from the circumstances under which he conceived the substance of the exhibit—as the answer to a problem other than that of fair displays. As late as 1935 Bel Geddes himself had proposed a production-oriented, simulated factory-tour display to publicize the contributions of the steel industry to world progress. On a "group of barges tied to a dock at Pittsburgh" this industrial theater would tell "the story of steel from the ore through the mill to the finished product."(65) But the exercise of pondering the solutions to traffic problems oriented Bel Geddes to exploit an idea that had recently been percolating among the creators of industrial exhibits—the idea that, especially for public relations purposes, the future (rather than company history or production processes) might provide better themes for successful image-building exhibits.(66)

By 1939, most of the corporate exhibits had made a substantial break with the production-oriented tradition of trying to display the processes of production. Some, like the 1939 Chrysler exhibit designed by Raymond Loewy, opted for a melange of entertainments—a "Five-Star Show"—while Ford and Du Pont, under the guidance of Walter Dorwin Teague, somewhat awkwardly tried to combine marionettes or musical comedies with stories of products and production or the history of the industry. Ford, with its animated, cartoon-like "Cycle of Production," still tried to impress visitors with the scope and rationality of its processes of production through an entertaining, "educational" review of how cars are made. (67)

In shifting from "the factory" to "the future," Bel Geddes and General Motors managed to introduce many qualities of theatrical entertainment while retaining a prestige-enhancing aura of seriousness. It constituted a major public relations success—not so much for the effectiveness of any of its specific messages (although Studebaker president Paul Hoffman praised Bel Geddes for "blasting open the minds of men as to our highway needs"), but because the great corporation had benevolently offered the public an entrancing "free show" without crossing over the indistinct boundary to pure entertainment. Bel Geddes himself concluded from the immense popularity of the exhibit that he had discovered a new force for change in the world—the educative power of visual dramatization.(68)

On many grounds Bel Geddes's display was evasive. As David Nye points out, the dwarfing and depersonalizing effects of miniaturization on the portrayal of human beings in the model reflected the Futurama's larger failure to make "any attempt to grasp future human relations" in this technological paradise.(69) In fact, Bel Geddes explicitly evaded his own earlier vision of the small town of the future as dominated by a single multipurpose skyscraper. In the Futurama, the small town on the periphery of the city of the future looked exactly like the traditional idealized portrait, with houses nestled around the single church with lofty steeple.

Speaking of evasions, there were no slums in Bel Geddes's Futurama. All had presumably succumbed to the bulldozers of the highway builders, never to replicate themselves elsewhere. Some admirers noted that he had prettified the future by eliminating such elements as billboards. Even Bel Geddes acknowledged that his highways might create monotony and that "much of the pleasure would be taken from motoring for most people."(70) But no one seems to have perceived the Futurama's greatest evasion of all, the ironic manner in which the fair visitors had been emancipated from relative tediousness of the old "tour-of-the-factory" display, only to find themselves being carried along on an assembly-line (the moving-chair conveyor belt) while General Motors constructed their vision of the future.(71)

Notes:

1. I am indebted to the American Council of Learned Societies and the University of California-Davis Humanities institute for fellowship support during the time when much of the research for the two essays on "The Corporation Goes to the Fair" was completed. Ms. Edith Lutyens Bel Geddes kindly granted me permission to make use of the rich and copious Norman Bel Geddes Papers at the Harry Ransom Humanities Research Center at the University of Texas, Austin, where H.K. Crain, Prentiss Moore, and Melissa Miller-Quinlan provided me with valuable assistance in exploring the collection. I wish to thank Jeffrey Meikle and Michael L. Smith for their helpful critiques of an earlier draft of this essay.

2. On Teague's claim to have acquired the experience to produce "hit shows," see Martin Dodge to E. Stettinius Jr., November 3, 1939, reel 16:30A, Walter Dorwin Teague Papers, George Arents Research Library, Syracuse University. The accolade "smash hit," appeared in Morton Eustis, "Big Show in Flushing Meadows," Theatre Arts Monthly 23 (August 1939): 568 and in the Reynoldsburg (Ohio) Press, August 31, 1939, clipping file, Norman Bel Geddes Papers, Theatre Arts Collection, Harry Ransom Humanities Research Center, University of Texas, Austin, by permission of Edith Lutyens Bel Geddes, executrix.

3. The only other major industrial designer with significant experience in the theater was Henry Dreyfuss, who had worked under Bel Geddes when the latter was primarily a stage designer. For excellent, concise reviews of the careers of the major designers, see Jeffrey L. Meikle, Twentieth Century Limited: Industrial Design in America, 1925-1939 (Philadelphia, 1975), Chapter 3.

4. New Yorker, February 8, 1941, 25; Arts and Decoration 41 (October 1934): 44, 47-48; Norman Bel Geddes, Draft for Autobiography (hereafter cited as "Autobiog.,") AJ-13, Chapter 68, Bel Geddes Papers. (Since Bel Geddes's two manuscript autobiographies were typed from dictation and often not corrected, I have inserted in quotes what I assume to be the correct names and words in instances where there have been obvious misunderstandings by the typist-i.e., "Gegges" for Geddes, "Neustein" for (William Knudsen, "Future Ami" for Futurama, etc.). The characterization of Bel Geddes as "impractical visionary" appears in Arthur J. Pulos "Dynamic Showman", Industrial

Design 17 (July-August 1970): 60. For Bel Geddes's view of Teague, see "Transcription of Interview between Mr. Geddes and Selma Robinson," January 27, 1942, file 937 (draft for Chapter 76), Bel Geddes Papers.

5. Walter D. Teague to Fred Black, April 29, 1938, Acc. 544, Box 15, Ford Motor Company Archives, Edison Institute, Dearborn, Michigan. Bel Geddes was well aware of how "scared" the GM executives were. See Bel Geddes to Francis Waite Geddes, November 9, 1938, personal correspondence, Bel Geddes Papers.

6. Having acknowledged by May 1939 that "(t)here is unfortunately no question but that the GM exhibit is decidedly more popular than ours," Ford public relations men reconciled themselves to promoting their display as a more beautiful, more dynamic and "sounder educationally." George F. Pierrot to H.G. McCoy, May 21, 1939, Pierrot to Donald H. Long, et al., May 18, 1939, Acc. 56, Box 3, Ford Archives.

7. Paul Garrett, chief of GM's public relations, explained to the president of Du Pont that arranging opportunities for the corporation's "special friends" to experience the Futurama without standing in long lines was "about the biggest headache we have." Garrett to W.S. Carpenter, Jr., August 16, 1939, Box 821, Series II, part 2, E. I. Du Pont de Nemours & Company Archives, Hagley Museum and Library.

8. New York Journal and American, June 11, 1939, 3; Variety, April 26, 1939; San Antonio Express, n.d., clipping, file 381 (Publicity folder), Bel Geddes Papers. Statistics on the Futurama's popularity appear in Market Analysts, Inc. "Ratings of Exhibits," (enclosure to Sanford Griffith to C.E. O'Neil, March 14, 1940, Box 9, RG3,J. Walter Thompson Company Papers, Duke University and Sales Management, July 1, 1939, 60). On a rating system of three points for first choice, two points for second, and one for third, the Market Analysts, Inc., survey arrived at a rating of 1659 for General Motors to only 347 for third-place Ford. General Electric ranked second at 514.

9. Roland Marchand, "The Designers Go to the Fair: Walter Dorwin Teague and the Professionalization of Corporate Industrial Exhibits, 1933-1940," Design

10. Norman Bel Geddes, Horizons(Boston 1932), 3-5, 100, 140, 143, 146, 150, 152, 157, 178, 181, 186-90, 193, 206-18; Norman Bel Geddes, Miracle in the Evening: An Autobiography, ed. By William Kelley (Garden City, New York, 1960), 147, 251.

11. Bel Geddes, Horizons, 282-85.

12. An excellent interpretive study of Bel Geddes's role in this campaign appears in Jeffrey L. Meikle, The City of Tomorrow: Model 1937 (London: Pentagram Design, 1984).

13. Meikle, City of Tomorrow, 7-19; "Minutes of Meeting, April 5, 1938," file 389, "Notes Taken in Meeting with Mr. Bel Geddes, November 10, 1939" and "Shell City of Future Questions," 15, 21, 23, file 356, Miller McClintock to Bel Geddes, August 9, 1937, file 951, Bel Geddes, "Autobiog.," AJ-17, Chapters 74-75, all Bel Geddes Papers.

14. Flash, November 5, 1937, 1, and People September 1937, 1-3, both J. Walter Thompson Co. Papers; Meikle, The City of Tomorrow, 11, 19-22; Bruce Bliven, "Metropolis: 1960 Style," New Republic, September 29, 1937, 211-12.

15. Norman Bel Geddes, Magic Motorways (New York, 1940), 4-5, 52, 56, 207-8, 211; "Sound Chair Script," 18, Futurama folder, file 381, Bel Geddes Papers.

16. New Yorker, February 22, 1941, 28-29; Bel Geddes, "Autobiog.," AJ-20, Chapters 8-83, 1, AE-84, Chapter 77, 4-5, Chapter 80, 1, Bel Geddes Papers.

17. Bel Geddes, "Autobiog.," AE-84, Chapter 80, 6, Bel Geddes Papers; Alfred P. Sloan, Jr. to F. B. Jewett, November 30, 1937, New York 1937 folder, Charles F. Kettering Papers, GMI Alumni Foundation Collection of Industrial History, Flint, Michigan.

18. "Preliminary Sketches, Highways and Horizons," Box 319, "Spectator's Transportation System," e 381 (Production Specifications folder), Bel Geddes Papers.

19. Jeffrey L. Meikle, Twentieth Century Limited, 207; People J. Walter Thompson Company), September 1937, inside front cover; "Notes Taken in Meeting with Mr. Geddes," November 10, 1936 and "Notes of Meeting with Mr. Geddes," November 12, 1936,, file 356, Bel Geddes Papers. On the collapse of the Goodyear sponsorship, see Bel Geddes to J.W. Dineen, February 24, 1938 and March 16, 1938, file 381 (Correspondence folder) and Bel Geddes, "Autobiog.," AE-84, Chapter 80, 1-2, Bel Geddes Papers.

20. On GM's commitment to the assembly line and research-exhibit plan in late 1937 see "Technical Suggestions Relative to New York World's Fair-1939," World's Fair, New York, 1937 folder; Alfred P. Sloan, Jr. to F.B. Jewett, November 30, 1937, General Motors, New York, 1937 folder, Kettering Papers; Alice Marquis, Hopes and Ashes: The Birth of Modern Times (New York, 1986), 20-23.

21. Bel Geddes, "Autobiog.," AMI Series, Chapter 76, 1-9, Chapter 77, 3-8, AE84, Chapter 80, 1-11, Bel Geddes Papers; Marquis, Hopes and Ashes, 203.

22. Bel Geddes, "Autobiog.," AE-84, Chapter 80,5, AMI series, Chapter 76,9, Bel Geddes Papers.

23. Norman Bel Geddes to Frances Waite Geddes, October 26, 1938, October 27, 1938, personal correspondence; Bel

Geddes, "Autobiog.," AJ-20, Chapters 80-83, 2 and page titled "GM Officials," William Knudsen to Norman Bel Geddes, May 3, 1938, in folder for AE-84, Chapter 80, untitled manuscript, 3, file 381 (GM intersection folder), Bel Geddes Papers.

24. Bel Geddes, "Autobiog.," AJ-17, Chapter 80, 3-4, Bel Geddes Papers.

25. "Draft of Presentation," (with penciled corrections), March 30, 1938, file 381 (Specifications Buildings folder), Bel Geddes Papers; Paul Garrett, "Survey on World's Fair," typescript, December 15, 1939, Department of Public Relations Presentations, General Motors Public Relations Archives, Detroit; GM Folks 2 (March 1938): n.p.

26. Press Release, April 15-16, 1939, file 384 (Correspondence folder), Press Release, April 29, 1939, file 381, Press Guide, 1940, typescript, 9-10, file 381, Chart of Specifications for Preliminary Model, file 381, Norman Bel Geddes to Frances Waite Geddes, November 9, 1938, personal correspondence, all Bel Geddes Papers.

27. Bel Geddes, Miracle, 167, 274, 282, 293, 299; Bel Geddes, Horizons, 182-84; Bel Geddes, "Autobiog.," AJ-16, Chapter 72, pp. 21, 36, 40, Bel Geddes Papers.

28. BBDO Bulletin, May 19, 1937, n.p., BBDO House Organs folder, BBDO Archives, New York.

29. Norman Bel Geddes to Frances Waite Geddes, November 16, 1938, personal correspondence, Bel Geddes Papers.

30. "Description of the General Motors Building and Exhibit for the New York World's Fair," typescript, September 8, 1939, 1-2, file 381 (General Motors Building folder), "Peter Schladermundt, "What is Design," 14, in Bel Geddes, "Autobiog.," AJ-17, Chapters 74-75, Bel Geddes Papers; Robert Coombs, "Norman Bel Geddes' Highways and Horizons," Perspecta 13/14 (1971): 12-13; Meikle, Twentieth Century Limited, 201.

31. The Sun (New York), April 29, 1939, n.p.; Syracuse (New York) Post Standard, May 19, 1939, n.p., clippings, file 381 (Publicity folder), Christian Science Monitor, July 8, 1939, 6, clipping, file 397, Bel Geddes Papers; Eustis, "Big Show," 571; Coombs, "Bel Geddes," 15-16; Bel Geddes, Miracle, 262.

32. "Description of the General Motors Building and Exhibit for the New York World's Fair," typescript, September 8, 1939, 4-5; Press Guide, 1940, 10-2, file 381, Bel Geddes Papers; Coombs, "Bel Geddes," 15-16; Eustis, "Big Show" 572.

33.Press Guide, 1940, 13, "This exhibit…," (untitled typescript), 10, file 381 (Correspondence folder), Bel Geddes, Autobiography", E-84, Chapter 77, 1; New York sun, April 19, 1939 (clipping) file 381 (Publicity folder), Bel Geddes Papers; "A Comprehensive Description of the General Motors Highways and Horizons Exhibit," Kettering Papers.

34. Eustis, "Big Show," 571; "A Greeting to Our Guests," n.p. pamphlet, file 408, Bel Geddes Papers.

35. Press Guide, 1940, 13 "Sound Chair Script, Futurama," 1, file 381, Bel Geddes Papers; Stuart Chase, "Pattern for a Brave New World," Cosmopolitan (December 1939): 39.

36."Memo NG from Self," July 25, 1938, and "Technical Supplement," typescript, April 7, 1938, 2-5, file 381 (Production Specifications folder), Bel Geddes Papers.

37. Press Guide, 1939, 14-17, file 381, Bel Geddes Papers.

38. Worthen Paxton to Norman Bel Geddes, November 1, 1938 and Anon., "Notes on Airplane Trip, November 2, 1938," folder P.file 381, Notes on Meeting, November 1, 1938, file 381 (Production Specifications folder), untitled manuscript, file 381 (GM Intersection folder), Worthen Paxton to Richard Grant, July 12, 1938, file 381 (Correspondence folder), Norman Bel Geddes to Frances Waite Geddes, November 2, 1938, personal correspondence, all Bel Geddes Papers, Eustis, "Big Show," 571; Marquis, Hopes and Ashes, 210.

39. "Notes of Meeting, November 1, 1938," file 381 (Product Specifications folder); Worthen Paxton to Norman Bel Geddes and "BW," April 11, 1938, file 381 (GM building folder), "Original Presentation to Sloan, Knudsen & Grant," n.p. and Press Release, April 15-16, 1939, file 384, all Bel Geddes Papers.

40. Bel Geddes, "Autobiog.," AJ-16, Chapter 72, pp. 21, 36, 43, Bel Geddes Papers.

41. Bel Geddes, Miracle, 147. Bel Geddes had also developed the scenario in the mid-1920s for a movie that would be filmed in such a way that "every member of the audience would be in the place of the protagonists… Thus the audience would not merely see the events, it would experience them." Bel Geddes, Miracle, 324.

42. "Description of the General Motors Building and Exhibit for the New York World's Fair," typescript, September 8, 1939, 31, file 381 (General Motors Building folder), Bel Geddes Papers.

43. Norman Bel Geddes, "Description of the General Motors Building and Exhibit…," typescript, September 8, 1939, 31, file 381, Bel Geddes Papers.

44. Bel Geddes, "Description of General Motors Building and Exhibit…," September 8, 1939, 31-33, "This Exhibit…," 22, file 381, Bel Geddes Papers; "A Comprehensive Description," Kettering Papers; Folke Kihlstedt, "Utopia Realized: The World's Fairs of the 1930s," 108, in Joseph J. Corn, ed., Imagining Tomorrow: History, Technology and the

American Future (Cambridge, Massachusetts, 1986).

45. Bel Geddes, Horizons, 156.

46.New York Herald Tribune, October 28, 1940, 28; Press Guide, 1939, 23-31, file 381, Bel Geddes Papers.

47. Paul Garrett, "Survey of World's Fair Exhibit," December 15, 1939, Public Relations Presentations Folders, General Motors Archives; Draft of Presentation, March 30, 1938, 29A-29B, file 381 (Specifications Buildings folder); Press Guide, 1939, 2, 17, file 381, Alfred P. Sloan Jr. to Norman Bel Geddes, March 31, 1939, file 381 (Correspondence folder), "1960 Calling!" brochure, file 381 (Publicity folder), all Bel Geddes Papers.

48. GM Folks 2 (March 1939): n.p.; Garrett, "Survey," loc. Cit.

49. Walter Lippman, "A Day at the World's Fair," New York Herald Tribune, June 6, 1939, 25. Social critic Stuart Chase also needled General Motors in his review of the exhibit by observing: "Another major impression was that modern science and engineering had been given a free ticket to do their very best, unhampered by considerations of vested interest, property rights, dollar profit and loss." Chase, "Pattern for a Brave New World," 82. Rexford Tugwell made similar observations in his review of Bel Geddes's Magic Motorways in the Saturday Review of Literature, April 13, 1940, 3-4. Even earlier, in reviewing the Shell Oil Company model, Bruce Bliven had observed in the New Republic (September 29, 1937: 212) that Bel Geddes's vision would require city, regional, and national planning and advertising agency copy-writer William Day, as Jeffrey Meikle recounts, had momentarily piqued Bel Geddes's interest with an idea that had to be quickly discarded as inappropriate for Shell Oil sponsorship: "the simplest method of eliminating cars in New York City or elsewhere…would be to pass a law prohibiting private ownership." Meikle, City of Tomorrow, 7.

50. Bel Geddes to W. Paxton, memo, November 25, 1938, file 381 (Production Specifications folder), Bel Geddes Papers.

51. Press Guide, typescript, 1940, 17, file 381, Norman Bel Geddes to Worthen Paxton, November 25, 1938, file 381 (Production Specifications folder), "Notes on Meeting," November 1, 1938, file 381 (Production folder), all Bel Geddes Papers; Chase, "Pattern for a Brave New World," 83.

52. On Bel Geddes's theory of proper design principles, see Horizons, 18-20 and passim.

53. Bel Geddes, Horizons, 156.

54. Jeffrey Meikle, Design in the Contemporary World (Stanford, 1989), 65-66; John Hesket, Philips: A Study of the Corporate Management of Design (London, 1989), 51, 82-83, 137; Richard Buchanan, "A Response to Klaus Krippendorff," Design Issues III-1 (Fall 1985): 73.

55. Paul Garrett, "Survey of World's Fair," loc. Cit.; "Magic Motorways Presentation," typescript, n.d., 10, file 384, "The Proposed Exhibit," untitled memo, April 7, 1938, 5, file 381 (Correspondence folder), "Production Minutes," April 5, 1938" as included in untitled typescript in file 381 (GM Intersection folder), Bel Geddes Papers.

56. Untitled manuscript, 33 in file 381 (Futurama Conveyor System folder), the Home Newspaper (Detroit), June 18, 1939, n.p., clipping file 381 (Publicity folder), Bel Geddes Papers; Bel Geddes, Magic Motorways, 6, 8. Bel Geddes's statement of his primary goal and his emphasis on entertainment, with emphasis in the original, appears in "The Proposed Exhibit…," 3, 14, file 381 (Correspondence folder), Bel Geddes Papers.

57. Sales Management, July 1, 1939, 25-26, 60; George F. Pierrot to H.G. McCoy, May 21, 1939, Acc. 56, Box 3, Ford Papers; New York Post, clipping, October 26, 1939, Sunday Mirror (New York), clipping, April 30, 1939, Journal American (New York), clipping, circa. June 31, 1939, file 381 (Publicity folder), Bel Geddes Papers.

58. "1934 Report on the Fair," 25-26, Acc. 1109, Box 7, Ford Archives; Worthen Paxton to Richard H. Grant, October 10, 1938b file 381 (Correspondence folder), Bel Geddes, "Autobiog.," AE-84, Chapter 77, 1; Press Guide, typescript, 1940, 20, file 381; "This Exhibit…," 10, 13, file 384 (Correspondence folder); New York World Telegram, July 13, 1939, n.p., clipping file 381 (Publicity folder), Bel Geddes Papers.

59. Peter Schladermundt, "What is Design" typescript, November 29, 1943, 14-15, in Bel Geddes, "Autobiog.," AJ-17, Chapters 74-75, Bel Geddes Papers, emphasis mine.

60. "The Proposed Exhibit," 3, file 381 (Correspondence folder), Bel Geddes Papers; Bel Geddes, Miracle, 324.

61. "The Proposed Exhibit," typescript [April 7, 1938], 3-4, 14, file 381 (Correspondence folder); New York Post, May 11, 1939, clipping, file 381 (Publicity folder), Bel Geddes Papers.

62. New York News, October 6, 1940, 80, clipping, file 381 (Publicity folder), Leo Weiselberg to Norman Bel Geddes, October 21, 1939 and Minutes of Meeting, April 26, 1940," file 384 (Correspondence folder), "A Presentation of Various Plans for Continuing the Use of the Futurama Following the Close of the World's Fair," April 24, 1940, 18-22, 26-30, file 381, all Bel Geddes Papers.

63. "A Presentation of Various Plans for Continuing the Use of the Futurama," 10-15, "Suggestion for a General Motors Consumer Building at Rockefeller Center," booklet, n.d. (circa. 1949-50), 1-3, 18-32, and Alfred P. Sloan, Jr.

to Norman Bel Geddes, May 19, 1950 (enclosed slip in booklet), Bel Geddes Collection. Ultimately, however, the exhibit was dismembered. One segment resurfaced as the feature of a city planning exhibit in St. Louis in 1941 and the army "borrowed" a large section to use while devising schemes of wartime camouflage. "Futurama Conveyor System," typescript, file 381, Bel Geddes Papers. I have not been able to discover whether any fragments of the original 1939-40 Futurama still exist.

64. As GM exhibit designer Allen Orth had earlier reminded company officers, an emphasis on the factory and assembly lines might invite the audience to recall those labor issues that had been "so much in the limelight" as a result of GM's relations with unions and the sit-down strikes in recent years. Allen Orth, "Technical Suggestions Relative to New York World's Fair - 1939," July 1, 1937, 5, in World's Fair, New York, 1937 file, Kettering Papers.

65. Bel Geddes, "Autobiog.," AJ-14, Chapters 69-70, Bel Geddes Papers.

66. Walter Dorwin Teague to William Hart, January 4, 1937, reel 16:21A, Teague Papers; "Chemical Memorandum," Acc 1662, Box 64, Du Pont Papers; "Program for Focal Exhibit of Means of Communication," 2, New York World's Fair, 1939 Papers, Box 57, New York Public Library.

67. On Chrysler, see Vols. 330 and 334, Ross Scrapbooks, Ivy L. Lee Papers, Princeton University and Knoxville (Tennessee) Journal, October 1, 1939, n.p. clipping, file 381 (Publicity folder), Bel Geddes Papers. On Ford and Du Pont, see Marchand, "The Designers Go to the Fair.".

68. Paul G. Hoffman to Norman Bel Geddes, July 2, 1940, file 384 (Correspondence folder), Bel Geddes Papers; Bel Geddes, Magic Motorways, 4.

69. David E. Nye, "Yesterday's Ritual Tomorrows: The New York World's Fair of 1939," in Making Exhibitions of Ourselves (London, 1990); David E. Nye, Electrifying America: Social Meanings of a New Technology (Cambridge, Massachusetts, 1990), 368, 371.

70. "Sound Chair Script," 18, file 381 (Futuramas folder), Albert S. Bard to Norman Bel Geddes, November 14, 1939, Bel Geddes to F. S. Chase, October 30, 1939, Bicknell (Indiana) News, October 30, 1939, n.p., clipping, file 381 (Publicity Folder), "Notes taken in Meeting with Mr. Geddes Papers.

71. In a similar vein, Jeffrey Meikle notes Walter Dorwin Teague's comment that "people must flow in an exhibit" and observes that by 1939 designers had consciously come to see exhibition buildings as "machines for processing people." It was Bel Geddes who installed the assembly line which most imaginatively and exactly regulated that flow and undertook that processing. Meikle, Twentieth Century Limited, 197.

" The Designers go to the Fair, II: Norman Bel Geddes, The General Motors "Futurama," and the Visit to the Factory Transformed". By Roland Marchand. In Doordan, Dennis P. (1995). *Design History: An Anthology*. Cambridge: The MIT Press. p. 103 to 121