

# Products or Bodies? Streamline Design and Eugenics as Applied Biology

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In 1939, *Vogue* magazine invited nine well-known industrial designers—including Walter Dorwin Teague, Donald Deskey, Raymond Loewy, Henry Dreyfuss, Egmont Arens, and George Sakier, among others—to design a dress for the “Woman of the Future” as part of its special edition promoting the New York World’s Fair and its theme, “The World of Tomorrow.” While focusing primarily on her clothing and accessories, many commented as well on future woman’s physique, predicting that her body and mind would be perfected through the implementation of eugenics.

Figure 1

Donald Deskey, “Radically New Dress System for Future Women Prophesies Donald Deskey,” *Vogue* (1 Feb. 1939): 137. Copyright © 1939 Condé Nast Publications Inc. Reprinted by permission. All rights reserved.



For example, Deskey proclaimed, “Medical Science will have made her body Perfect. She’ll never know obesity, emaciation, colds in the head, superfluous hair, or a bad complexion—thanks to a controlled diet, controlled basal metabolism. Her height will be increased, her eyelashes lengthened—with some X-hormone.” Because of her beautiful body, she would no longer need to wear underwear, he thought, and having passed through a stage of nudism, she would clothe herself in toga-like, semi-transparent draperies [figure 1].<sup>1</sup> Teague’s design showed that he also believed that most women would have “beautiful bodies, and the present trend toward nudity [would] continue at an accelerated pace.”<sup>2</sup> Sakier stated that “[t]he woman of the future will be tall and slim and lovely; *she will be bred to it*—for the delectation of the community and her own happiness.... Her view-point will be clear and direct. She will be free from complexes and inhibitions.”<sup>3</sup> Balking the fashion trend, Loewy’s dress design focused less on transparency and more on efficiency. The lightweight wool suit had sleeves that zipped on and off for a quick transition between the office and the nightclub. However, this pragmatic costume also was due in part to Loewy’s vision of women’s bodies. Although films about the future succeeded in showing men and women in “various scanty and often attractive-looking attire” owing to the actors’ youth and good looks, Loewy felt that “this type of clothing doesn’t seem adapted to contemporary individuals.” However, he did not rule out the possibility that in the future, “eugenic selection may bring generations so aesthetically correct that such clothes will be in order.”<sup>4</sup>

These predictions about the actualization of eugenics were reiterated throughout the entire issue of the magazine in the text of numerous articles. One piece was accompanied by an illustration [figure 2] depicting chemically-controlled reproduction of scientists and policemen (note the varied ratio of brain to body size), as if taken from the opening chapter of Aldous Huxley’s *Brave New World* (1932) in which human embryos are transported on an assembly-line conveyor, receiving injections that determine their future occupations. The text of the *Vogue* article declared that, in the next century or so, reproduction would be “separated from marriage. Somewhere along about 2050 A.D. the first ectogenetic child, fertilized and grown in a glass tube in a laboratory, and then born outside the mother’s body, will be just entering school.” The author believed that “[g]enetics, by then, will be an old story. By the right combination, which almost anybody can reason out mathematically then, the world will have the kind of people the world wants. If someone wants them, it will not be difficult to produce some ‘fifty-thousand irresponsible, if gifted, mural painters.’”<sup>5</sup> Earlier in the issue, a description of “To-Morrow’s Daughter” proclaimed, “To-morrow’s American Woman may be the result of formulae—the tilt of her eyes, the curve of her chin, the shade of her hair ordered like

- 1 Donald Deskey, “Radically New Dress System for Future Women Prophesies Donald Deskey,” *Vogue* (1 Feb. 1939): 137, and David A. Hanks and Jennifer Toher, *Donald Deskey: Decorative Designs and Interiors* (New York: E. P. Dutton, 1987), 74.
- 2 Walter Dorwin Teague, “Nearly Nude Evening Dress Designed by Walter Dorwin Teague,” *Vogue* (1 Feb. 1939): 143.
- 3 George Sakier, “No Mechanistic Clothes for Future Women Predicts George Sakier,” *Vogue* (1 Feb. 1939): 144. Italics added.
- 4 Raymond Loewy, “Raymond Loewy, Designer of Locomotives and Lipsticks, Creates a Future Travel Dress,” *Vogue* (1 Feb. 1939): 141.
- 5 Allene Talmey, “A World We’ll Never See,” *Vogue* (1 Feb. 1939): 90, 91, 164. Near the end of her article, she envisioned that, in 4000 A.D., “all race problems will be solved. Through genetics, natural amalgamation, and some force that no one can put his finger on, there will be one race. Man will be pale, with a coffee-coloured skin, Mongoloid eyes, and he will be only a little shorter than the average Englishman today. Woman, however, will be about six feet tall, with muscles bulging like a bag of oranges, and she will definitely be the sum of enchantment.”

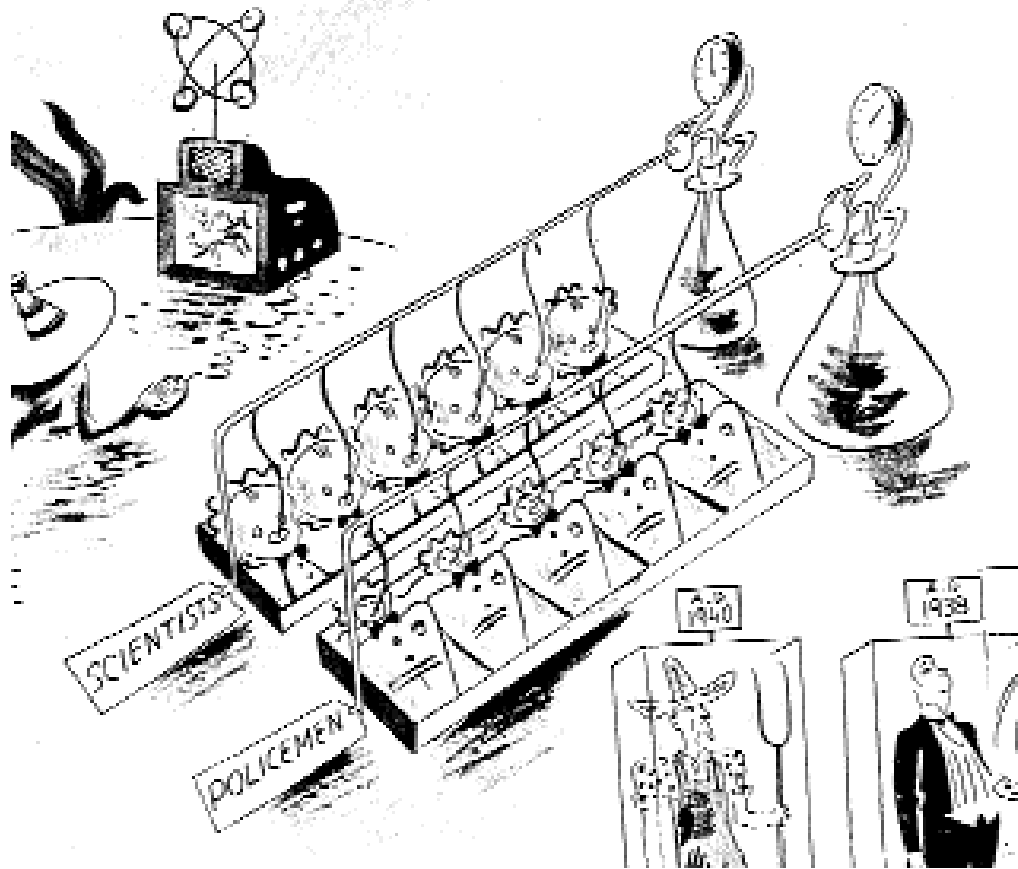


Figure 2  
 Illustration accompanying Allene Talmey, "A World We'll Never See," *Vogue* (1 Feb. 1939): 90. Copyright © 1939 Condé Nast Publications Inc. Reprinted by permission. All rights reserved.

crackers from the grocer. She may be gentle, sympathetic, understanding—because of a determinable combination of genes." Furthermore, "her face will be beautiful, but that beauty will not be merely an 'assembly-line' product.... [H]er body will be a perfectly-working machine, unencumbered with pain.... [H]er mind will work clearly, unfogged; with cold logic and warm sympathy.... Tomorrow's American Woman may, indeed, be close to perfection."<sup>6</sup>

As these descriptions clearly reveal, ideas promoted by the eugenics movement during the 1920s retained their appeal throughout the 1930s. Although anthropological publications such as Ruth Benedict's *Patterns of Culture* (1934) were asserting that many human traits previously considered to be genetic were in fact cultural, such proclamations failed to reach readers of the 1939 issue of *Vogue*, who could ascertain from its contents that one's occupation, intelligence, beauty, and personality stemmed from one's genetic makeup.<sup>7</sup> Based upon the assumption that the inheritance of such traits followed Mendel's laws, eugenicists had been striving since the 1910s through their own research and through education of the public to produce the easily stated but ever-elusive "kind of people the world wants." Because they believed that advances in medicine and sanitation were displacing the once-purifying role of natural

- 6 "To-morrow's Daughter," *Vogue* (1 Feb. 1939): 61. Three other references to eugenics in this *Vogue* issue deserve mention. An article on "Good Form in America," which plugged the use of corsets, began by stating that "[I]t is not just an accident of Nature and heredity that American women, as a group, have the most admirable figures in the world." (114) Another article praising the cleanliness of the American woman, entitled "Bathing Beauty: An American Institution," asserted that "We are born and bred in the tradition of cleanliness." (95) Another, "Clothes America Lives In," extolled her fashion sense, extending her eugenic qualities to her clothing: "These are the clothes born out of our own background, that we love, that we live in, that we do better than any one else in the world . . . which have given us our 'mass' reputation for being a race of extraordinarily well-dressed women." (101)
- 7 Ruth Benedict, *Patterns of Culture* (Boston: Houghton Mifflin Company, 1934).
- 8 Letter from Charles Davenport to Frederick Osborn, 13 Feb. 1930, folder "Frederick Osborn," Charles B. Davenport Papers, American Philosophical Society.<sup>9</sup> Christina Cogdell, "The Futurama Recontextualized: Norman Bel Geddes's Eugenic 'World of Tomorrow,'" *American Quarterly* 52:2 (June 2000): 193-246.
- 10 Sheila Weiss, *Race Hygiene and National Efficiency: The Eugenics of Wilhelm Schallmayer* (Berkeley: Univ. of California Press, 1987), 53, 62.
- 11 "Population of the Empire: Falling Birthrate," and "Warning Figures," the *Times* (London), 10 Aug. 1935, folder "Newspaper Clippings - England, 1935-36," Herbert Spencer Jennings Papers, American Philosophical Society.
- 12 See article by Henry Fairfield Osborn, *Forum* (Aug. 1932), as quoted in a letter from Charles Davenport to Frederick Osborn, 29 July 1932, folder "Henry Fairfield Osborn," Charles B. Davenport Papers.
- 13 Sheila Weiss, "The Race Hygiene Movement in Germany, 1904-1945" in Mark Adams, ed., *The Wellborn Science: Eugenics in Germany, France, Brazil, and Russia* (Oxford: Oxford Univ. Press, 1990), 26, 49.

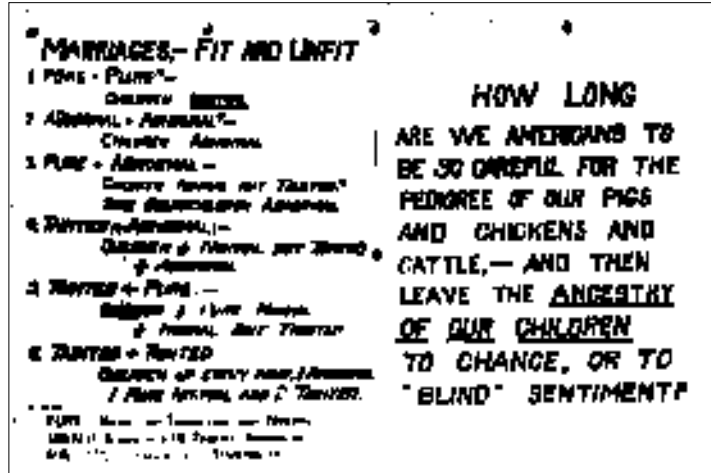
selection in the process of human evolution, thereby permitting the continuation of the "unfit," eugenicists proposed replacing natural selection with "rational selection." By carefully controlling human reproduction in favor of selected traits, eugenicists hoped to gain control of evolution itself. Charles Davenport and Frederick Osborn, two leading U.S. eugenicists, clearly stated this goal in 1930: "When we understand the processes directing contemporary evolution, we will be in a position to work actively toward the acceleration of these processes and especially to direct them in what seems to us the best way."<sup>8</sup>

Eugenicists' notions of directing and accelerating human evolution in many ways metaphorically paralleled industrial processes of assembly-line manufacture. These parallels posed the basis for Huxley's fictional eugenic scenario in a world that began during the year of "Our Ford," the father of the assembly line. Industrial designer Norman Geddes perhaps furthered this parallel in his staging of Huxley's opening scene through the format of the Futurama at the New York World's Fair.<sup>9</sup> *Vogue* writers, too, reaffirmed this idea in their suggestions that desirable qualities might be "ordered like crackers from the grocer" (issued with the reassurance that the resulting female would be more than "an 'assembly-line' product," despite the fact that her body would be a "perfectly-working machine"). In fact, technology's processes and products offered so compelling a model of managed production and profit that many of its aspects—from its terminology to its conceptualization and applications—were applied by eugenicists to humans. Phrases referring to humans as "material" and "products" frequently recur in the eugenic literature from various countries.

For example, one German eugenicist equated a minister of public health with "an agricultural, trade, or railroad minister," because each administered "goods" of significant value.<sup>10</sup> An article warning of racial population flux in Britain and its colonies, saved by geneticist Herbert Spencer Jennings from the *Times* (London) in 1935, lamented "the unpredictable changes in the masses of human material on which the statesman has to work."<sup>11</sup> Using an analogy of import in light of the ideals of the streamline style, Henry Fairfield Osborn, father of Frederick Osborn and director of the American Museum of Natural History in New York, characterized "defectives" as "drag nets on the ship of state" in an article in 1932 in *Forum* magazine.<sup>12</sup> Historian Sheila Weiss points to this underlying "technocratic logic" of eugenics, rather than to its racism, as the most ethically perverse and damaging aspect of the movement. Once people of any sort were reduced to the status of less valuable products of a nation or considered as human "wreckage," their inutility logically demanded their disposal in the interest of efficiency, continued evolutionary progress, and enhanced national strength.<sup>13</sup>

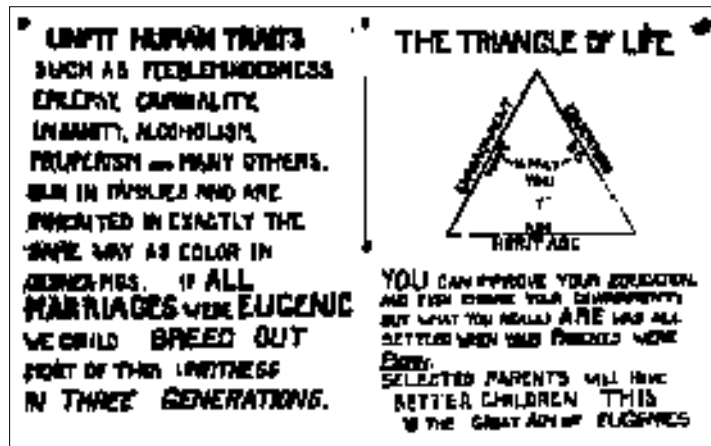
Figure 3

American Eugenics Society (AES) display, "Marriages—Fit and Unfit," Kansas Free Fair, Topeka, 1929, in the AES photo scrapbook, AES Papers. Courtesy of the American Philosophical Society, Philadelphia.



14 In another article, I have argued more completely for the continued popularity of eugenics in the U.S. during the 1920s and 1930s, and its influence upon industrial designer Norman Geddes. For example, more than 36,000 sterilizations had been performed in the U.S. by the beginning of World War II, with some states maintaining their sterilization statutes into the 1970s. Eugenics was the primary reason behind the Immigration Restriction Act of 1924; as Rep. Robert Allen of West Virginia summarized, "The primary reason for the restriction of the alien stream, however, is the necessity for purifying and keeping pure the blood of America." Seventy percent of forty-one high school textbooks written between 1914 and 1948, surveyed by historian Steven Selden, promoted eugenics as a legitimate science. Furthermore, a poll by *Fortune* magazine in 1937 found that sixty-three percent of the U.S. population endorsed compulsory sterilization of "habitual criminals," while sixty-six percent supported the sterilization of "mental defectives." See Cogdell, "The Futurama Recontextualized," 198–205; Daniel Kevles, *In the Name of Eugenics: Genetics and the Uses of Human Heredity* (New York: Knopf, 1985), 106, 115–116; and Steven Selden, *Inheriting Shame: The Story of Eugenics and Racism in America* (New York: Teachers College Press, 1999), 64.

15 Norman Geddes, "Ten Years from Now," *Ladies' Home Journal* (Jan. 1931), repr. in *Rassegna* 60 (Winter 1994): 19–21.



During the 1920s and 1930s, however, in pursuit of their goals, eugenicists implemented a two-pronged approach to maximize the efficiency of their programs for the genetic improvement of the race. "Positive eugenics" targeted the "fit" and worked to increase the quality and number of their offspring through propaganda offering simplistic explanations of Mendelian formulae [figure 3], and encouraging the production of large numbers of children from the well-endowed. Contrarily, "negative eugenics" worked to limit the reproductive capacities of the "unfit" and their supposedly deleterious influence on the national bloodstream. Such policies took form politically through legislation aimed at enforcing anti-immigration (the federal Immigration Restriction Act of 1924), the distribution of birth control to "less desirable" populations (the goal of Margaret Sanger's American Birth Control League), and "voluntary" sterilization of criminals and the feeble-minded (twenty-nine states had passed such statutes by 1938).<sup>14</sup> Geddes likely referred to the latter in 1931 in the *Ladies' Home Journal*, where he predicted in "Ten Years from Now," that "[M]edical and surgical treatment will reduce crime to a fraction of its present-day proportion."<sup>15</sup> The implementation of "positive" and "negative" eugenics





Figure 4  
 New York Times article and illustration,  
 "Science Pictures a Superman of Tomorrow,"  
 8 Dec. 1929. Copyright © 1929 The New  
 York Times. Reprinted by permission. All  
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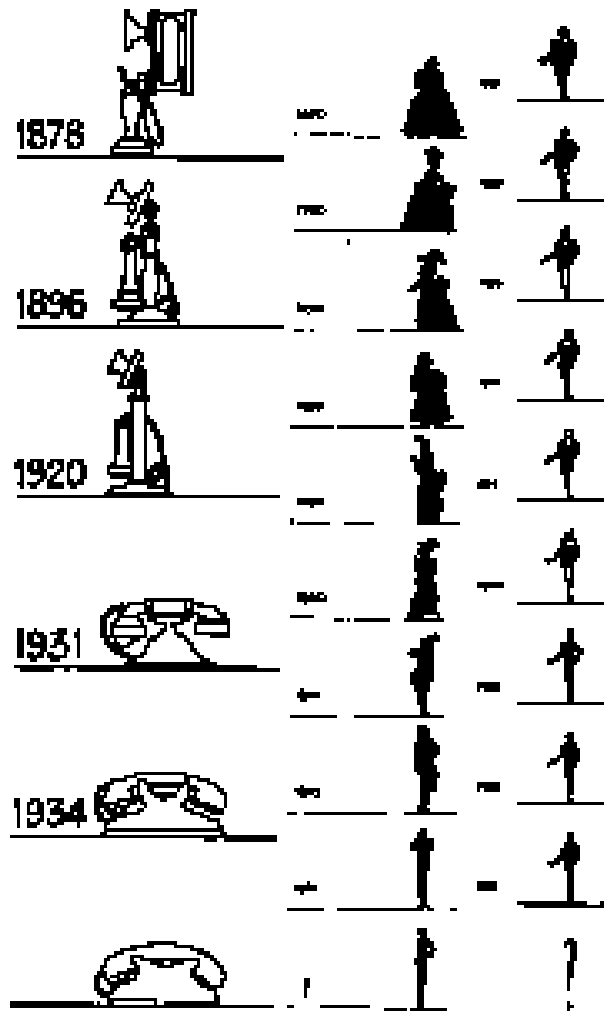
depended upon the participation of an enlightened public, both in their support for eugenic legislation and in their personal choices, the latter of which *Vogue* authors took for granted. In part, this support arose from public acceptance of the humanitarian goals promoted by eugenics enthusiasts; as Sakier phrased it, good breeding was intended "for the delectation of the community" and an individual's "own happiness." Despite the important role played by the public, however, the media often portrayed the eugenicist himself, through his scientific research, as the mastermind producing the "Superman of Tomorrow" or, as compellingly, "various human types at will." [figure 4]<sup>16</sup>

Beyond the fact of the continued popularity of eugenics, its technocratic theoretical background conflating bodies with products, and designers' references to its possibilities in *Vogue* and the *Ladies' Home Journal*, what were the connections between eugenics and streamline design? Loewy's "Evolution Chart of Female Dress" [figure 5] offers an appropriate place to begin examining this question, for it expresses the designer's conception in the mid-1930s of the evolution of both the typical female costume and the female figure, from 1630 and 1890, respectively, into the indefinite future. In its inclusion of the female body, this chart differs dramatically from others by the designer such as the "Evolution Chart of the Desk Telephone" or those of any number of designed products such as automobiles, ships and houses. As was certainly intended by

16 H. Gordon Garbedian, "Science Pictures a Superman of Tomorrow," *New York Times* (8 Dec. 1929), folder "Oscar Riddle, 1929," Charles B. Davenport Papers - Cold Spring Harbor Series, American Philosophical Society. The second quote is drawn from Arthur A. Stuart, "Someday We'll Look Like This," *Popular Science Monthly* (July 1929), in folder "Art Education," Box 58, Egmont Arens Papers, George B. Arens Research Library, Syracuse University.

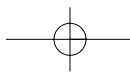
Figure 5

Raymond Loewy, "Evolution Chart of the Desk Telephone" and "Evolution Chart of Female Dress," 1934.



Loewy, who displayed one of these diagrams in his mock-up of an industrial designer's office at the *American Industrial Art* exhibition at the Metropolitan Museum of Art in 1934, these charts strongly but silently pointed to the industrial designer himself as the chief agent of product evolution. In the case of the female figure, however, this agency (as well as the end product) was more ambiguous, perhaps owing more to the eugenicist than the industrial designer, given the concurrent publicity of the eugenicist's powers.

In many ways, this ambiguity was appropriate to the roles of both professions, for both industrial designers and eugenicists (aspiring designers, as well, of humans and society) considered themselves to be primary agents of evolutionary progress. Enacting a role shared only by plant and animal breeders, both types of designers rationally selected between desirable and undesirable traits to reform "primitive," "criminal," and "degenerate" products and bodies from the inside out into functional, "fit" forms suitable

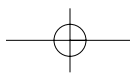


for mass (re)production. In both the arenas of eugenics and early industrial manufacture, designers bemoaned the all-too-rapid rates of reproduction of undesirable, unhygienic products and human “types” (for supposedly the “unfit” were more fertile and productive than the “fit” owing to their lesser intelligence and restraint, and heightened sexuality).<sup>17</sup> That industrial designers and modern architects such as Adolf Loos (in his seminal essay “Ornament and Crime”), however, applied the terminology used by eugenicists for human evolution (“primitive,” “criminal,” and “degenerate,” among others) to manufactured products deserves notice, for it points out the reciprocal conceptual force which each powerful modern realm—industrial manufacturing and evolutionary thought—endowed the other.

These evolutionary characterizations of products derived from a common art historical presumption that stylistic evolution paralleled human evolution, owing to the conception of style as a mental expression given physical form.<sup>18</sup> Historian Carlo Ginzburg has beautifully elaborated this concept for art history generally; its prevalence as well in the field of architecture and design is clearly manifest in the writings of modern practitioners. To return to Loos’s essay, his thesis that “modern” design cannot contain ornamentation and still be considered “modern” derives from his understanding of Ernst Haeckel’s theory of evolutionary recapitulation, in combination with the above understanding of style. Loos opens his essay by explaining recapitulation: “In the womb the human [i.e., white male] embryo goes through all phases of development the animal kingdom has passed through. And when a human being is born, his sense impressions are like a new-born dog’s. In childhood he goes through all changes corresponding to the stages in the development of humanity,” passing through the stages of a “Papuan... a Germanic tribesman...Socrates... Voltaire” to then become a “modern adult.” Loos, therefore, reasons that “[w]hat is natural in the Papuan or the child,” such as delight in ornamentation and tattooing *as shown through the style of their art*, “is a sign of degeneracy in a modern adult... The evolution of culture is synonymous with the removal of ornamentation from objects of everyday use.”<sup>19</sup>

Loos’s deduction was given graphic form by Loewy in his evolutionary charts which, as a whole, depict the evolution of design moving from the intricate, gaudy, and ornamental to sleek, simplified forms. The indexicality of an object’s style to the racial essence of its creator perhaps was most pointedly stated by Louis Sullivan, however. “The Parthenon was, in fact, the Greek nature, mind, heart, soul, beliefs, hopes, aspirations, known, felt, and interpreted by a great Greek artist,” he wrote. “[I]t was a direct product sign and image of Greek civilization.... Ask yourself the question: not in what *style*, but in what *civilization* is this building.”<sup>20</sup> Geddes, from his own extensive knowledge of late-nineteenth-century

- 17 On differential fecundity and intelligence, see Kevles, *In the Name of Eugenics*, 89; Linda Gordon, *Woman’s Body, Woman’s Right: A Social History of Birth Control in America* (New York: Grossman, 1976), 136-158; Cynthia Russett, *Sexual Science: The Victorian Construction of Womanhood* (Cambridge, MA: Harvard Univ. Press, 1989), 123; Cogdell, “Eugenics and Streamlining as Top-Down Reform,” in “Reconsidering the Streamline Style: Evolutionary Thought, Eugenics, and U.S. Industrial Design, 1925-1940” (Ph.D. Diss., University of Texas at Austin, 2001), 209-210; and Sheldon and Eleanor Glueck, *Five Hundred Delinquent Women* (New York: Knopf, 1934), 310.
- 18 Carlo Ginzburg, “Style as Inclusion, Style as Exclusion” in Peter Galison and Caroline Jones, eds., *Picturing Science, Producing Art* (New York: Routledge, 1998), 27-54.
- 19 Adolf Loos, “Ornament and Crime” in *Ornament and Crime: Selected Essays* (Riverside, CA: Ariadne Press, 1998), 167, 173. Brackets added for clarification. Because only white males occupied the evolutionary apex, only they could pass through *all* the stages of their predecessors to become “modern adults.”
- 20 Sullivan, “Towards the Organic” in Lewis Mumford, ed., *Roots of Contemporary American Architecture* (New York: Grove Press, 1959), 78. On Sullivan’s notions of race, see David S. Andrew, *Louis Sullivan and the Polemics of Modern Architecture: The Present Against the Past* (Urbana, IL: Univ. of Illinois Press, 1985), 45, 49, and Christina Cogdell, “Reconsidering the Streamline Style,” 57-59.





evolutionary thought, or from reading Sullivan or Claude Bragdon's descriptions of Sullivan, took these ideas one step further by asserting that the process of evolution was a direct force shaping style itself. "There is said to be a law of nature that higher forms must, before maturity, pass through all stages of evolution of their predecessors. This seems to hold true for the modern art of building." In a reference perhaps to the stylistic cacophony of nineteenth-century American architecture, he continued: "Mankind has had to re-experience the architectural development of the Egyptians, the Greeks, through the Gothic, the Renaissance and the Baroque, before it could express its own time in its own terms."<sup>21</sup> For Geddes, then, functionalist design as embodied in streamlined forms resulted from this process, which reaffirmed its preeminent position (and their own as well) as a "higher" evolutionary form.

Although Donald Bush and other historians of design refer to the influence of evolutionary ideas upon the style's development, they have done so largely to point out that organic forms such as birds and dolphins modeled the adaptations selected by nature in conformance with the principles of air and fluid dynamics, with the emphasis on the latter.<sup>22</sup> These principles, derived from physics, determined that for vehicles to travel through air or water efficiently with the least amount of resistance and energy expenditure, they required a minimum of protuberances, smooth external shells, rounded fronts, and tapered backs such as those exhibited by numerous organic forms. Hence, the style's sleek shape and its attendant qualities of maximized efficiency and hygiene. Historians also have agreed that, in addition to these qualities, streamline designers embraced the goal of producing "ideal" product types (despite their practice of planned obsolescence in product design) that would, at least in rhetoric, contribute substantially towards the realization of an imminent utopia. Jeffrey Meikle, in particular, has elucidated the important role that new materials and production processes played in the development of the style, in addition to establishing the most widely accepted ideological interpretation of the style as an appropriate response to the varied economic and psychological effects of the Great Depression.<sup>23</sup>

As shown above, however, the influence of evolution on modern architects and designers occurred at much deeper theoretical level than simply offering models of aerodynamically streamlined forms. If the biological evolutionary basis of the style is examined more closely, especially in consideration of the close relationship between evolutionary thought and eugenics at that time, new questions are raised about the message and meaning of the style as the first major expression of industrial design in the U.S. This article contends, therefore, that biological theories of evolution served as a primary ideological and historical *context* for designers' development of theories of streamlining; it does not consider evolution, as other historians and the designers themselves have, as a

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- 21 Norman Bel Geddes, *Horizons* (Boston: Little, Brown and Company, 1932), 283-4. On Geddes's evolutionary knowledge, see Cogdell, "The Futurama Recontextualized," 194-198, 205-209, and throughout, as well as Geddes's personal library at the Harry Ransom Humanities Research Center at the University of Texas at Austin.
- 22 Donald Bush, *The Streamlined Decade* (New York: George Braziller, Inc., 1975), 4-14, and Claude Lichtenstein and Franz Engler, eds., *Streamlined: A Metaphor for Progress* (Princeton: Princeton Univ. Press, 1995).
- 23 Jeffrey Meikle, *Twentieth-Century Limited: Industrial Design in America, 1925-1940* (Philadelphia: Temple Univ. Press, 1979); *American Plastic: A Cultural History* (Rutgers, NJ: Rutgers Univ. Press, 1995); and "Domesticating Modernity: Ambivalence and Appropriation, 1920-1940" in Wendy Kaplan, ed., *Designing Modernity: The Arts of Reform and Persuasion, 1885-1945* (London: Thames and Hudson, 1995), 142-167.



Figure 6  
*New York Herald Tribune* photo and caption, "Streamlined Beauty Treatment in the Evolution of Railroad Locomotives," 5 Mar. 1936, a copy of which is located in file "Railroad," Microfilm Roll 16.20, Walter Dorwin Teague Papers. Courtesy of the George B. Arents Research Library, Syracuse University.

progressive force actually at work in the dual arenas of human and product development. When viewed in this context, the style's close theoretical correlations to eugenics becomes clear. Just as deep concern over controlling the progress of evolution compelled many people to accept eugenics, so in many instances designers' applications of evolutionary principles to the realm of product design crossed the line between evolution and eugenics.

On one side of this line, according to *evolutionary* thought, natural selection and independent modification directed evolutionary progress; on the other side, according to *eugenic* thought, rational selection and controlled modification determined the paths of the future. Just as eugenicists tried to apply biological laws, as they understood them, to control the outcome of evolution by paring away the "parasite drag" caused by the "unfit," so too did streamline industrial designers apply biological principles when theorizing how to stylistically shape products into a modern aesthetic suitable for a "civilized" nation. In their equation of products with bodies, in their choice to focus on the elimination of "parasite drag" (as Geddes biologically termed the physically turbulent eddies that slowed a vehicle's forward progress), in their choice to foreground efficiency, hygiene, and the pursuit of the utopian "ideal type" as the preeminent goals for product design, and simply in their role as evolutionary agents reforming products for mass production, streamline designers *exactly* mirrored the theoretical doctrines, rhetoric, and role espoused by contemporary eugenicists.

Countless examples could be given of evolution as the primary conceptual model informing theories of streamline design, down to such remarkable intricacies as Egmont Arens's assertion of the role of "natural selection" in weeding out too-slow typographic fonts, or various designers' ruminations whether "bastard offspring" and "mongrelism" in product design restored "vitality" to modern design through "hybrid vigor" or desecrated its principles of "purity."<sup>24</sup> Instead, I will offer three particularly good examples (in addition to those already mentioned) in which designers' applications of evolutionary thought crossed over the line from evolution proper into the more historically improper realm of eugenics.

The first comes from a comparison of a German rail poster from 1935 with two remarkably similar images published in the U.S.: an advertisement for *Collier's* magazine that same year, and a brochure distributed by the U.S. Department of Agriculture during the previous decade. During the 1930s, numerous brochures and exhibits promoting "ultra-modern" streamlined trains lined up past and present locomotives in a row, facing the same direction, symbolically depicting the forward linear thrust of their evolutionary development [figure 6]. At times, the force and appeal of this forward progressive direction was heightened through comparison to a counter-directional motion. Although he does not explain the counter-directional imagery, Meikle discusses this trope of

24 On "natural selection" and the role of "bastard offspring" in typography, see Egmont Arens, "Creative Evolution of the Printed Word" (an address given before the Eastern Arts Association, 28 Apr. 1933), in Box 51 "Writings," Egmont Arens Papers, George B. Arents Research Library, Syracuse University. On "mongrelism" in design, see Henry Dreyfuss, *Designing for People* (New York: Paragraphic Books, 1955), 96, and Russell Flinchum, *Henry Dreyfuss, Industrial Designer: The Man in the Brown Suit* (New York: Rizzoli, 1997), 102, n. 40, 108, citing an inner-office memo. See also Cogdell, "Reconsidering the Streamline Style," 387.

“progress,” connecting past, present, and future, in a German poster bearing this type of imagery [figure 7].<sup>25</sup> The poster for the “100 Jahre Deutsche Eisenbahnen Ausstellung, Nürnberg” contrasts a fiery, elevated streamliner speeding towards the right with an earth-hugging, coal-powered, horse-and-buggyish train heading towards the left. Despite the blue smoke belching from the stack of this locomotive from the 1830s, this highly inefficient nineteenth-century train appears immobile, as stationary as the onlookers conversing with its passengers. Meikle astutely interprets the inclusion of this train as a transitional device that, through its allusions to the past, tempered the radicality of the streamliner of the future, making both more palatable to a culturally and socially conservative public. The streamliner thus became a “better version of [an] experience similar to those of the past.”<sup>26</sup>

Comparison with two other images from the U.S., however, suggests an additional meaning for this counter-directional imagery. An advertisement soliciting advertisers’ business for *Collier’s* magazine replicated almost exactly the image in the contemporaneous German poster [figure 8]. Across the top half of the two-page ad, a streamliner speeds to the right, its shining headlight illuminating the darkness. The train is followed by a swoosh of forward-slanted text that proclaims, “Stream-Lined Editing Long Before Stream-Lined Trains Set New Standards.” In the bottom left quarter of the pages, moving towards the left, are a mid- to late-nineteenth-century, coal-burning locomotive and railcar. But they seem to be moving so slowly that they do not even threaten to displace the blocky print stationed in front of them, which reads, “A Slow Ride for Your Money.”<sup>27</sup>

As the copy makes clear, the streamliner represented both the quick sales of *Collier’s magazine* and the fast-moving merchandise of manufacturers who advertised in its pages. Its swooping progressive curve foretold “an immediate upward response in your sales curve!” in addition to symbolizing through its forward-looking direction “the alert and progressive” purchasers who read the magazine. *Collier’s* promised that its readers and advertisers would be enthralled by “[t]imely, incisive articles—never dragged out in length,” for as both eugenicists and designers had publicized throughout the previous decade, “drag” posed a primary hindrance to progress.<sup>28</sup> The slow train, on the other hand, signified a slower-moving medium, one unlike *Collier’s* burdened by extraneous articles that targeted the “slow-minded, self-satisfied type of reader who buys, if at all, when he gets around to it.” By targeting the “active,” wealthy, mentally superior individuals, and “side-tracking” the “slow-minded” ones, *Collier’s* claimed that it had “segregated the very heart of the most responsive market in the United States.”

Through its terminology, this advertisement evoked various evolutionary and eugenic images: the side-tracked train, derailed from the line of progress, following an evolutionary dead-end; the

25 Meikle, “Domesticating Modernity: Ambivalence and Appropriation, 1920–1940,” 148–149.

26 *Ibid.*, 148.

27 *Collier’s* advertisement, 1935, in folder “Streamlining, 1933–1936,” Egmont Arens Papers. Italics added.

28 For examples of eugenicists’ use of the term “drag” to refer to the effect on human evolution and society caused by the “degenerate,” see the brochure “Eugenics at Work,” 1931, in folder “American Eugenics Society: Printing Orders, 1926–1942,” American Eugenics Society Papers, American Philosophical Society; George Benedict, “Sermon 47,” delivered at the Jewish Temple Emanu-El, Roanoke, VA, 1926, in folder “Rufus Baker, Sermon 21,” American Eugenics Society Papers; “Sermon 19,” 1928, in folder “Henry S. Huntington,” American Eugenics Society Papers; Charles Davenport, “Some Social Applications of Modern Principles of Heredity,” a speech given at the International Congress of Hygiene, 1912, in folder “Heredity Lectures,” file “Charles B. Davenport,” Charles B. Davenport Papers. The references are too numerous to include here. See also Loos’s statement in note 29 below.

Figure 7

Poster designed by J. Wiertz, "100 Jahre Deutsche Eisenbahnen Ausstellung, Nürnberg, 1935," in "Domesticating Modernity: Ambivalence and Appropriation, 1920–40," by Jeffrey Meikle, in *Designing Modernity: The Arts of Reform and Persuasion 1885–1945*, ed. by Wendy Kaplan (New York: Thames and Hudson, 1995), 149.

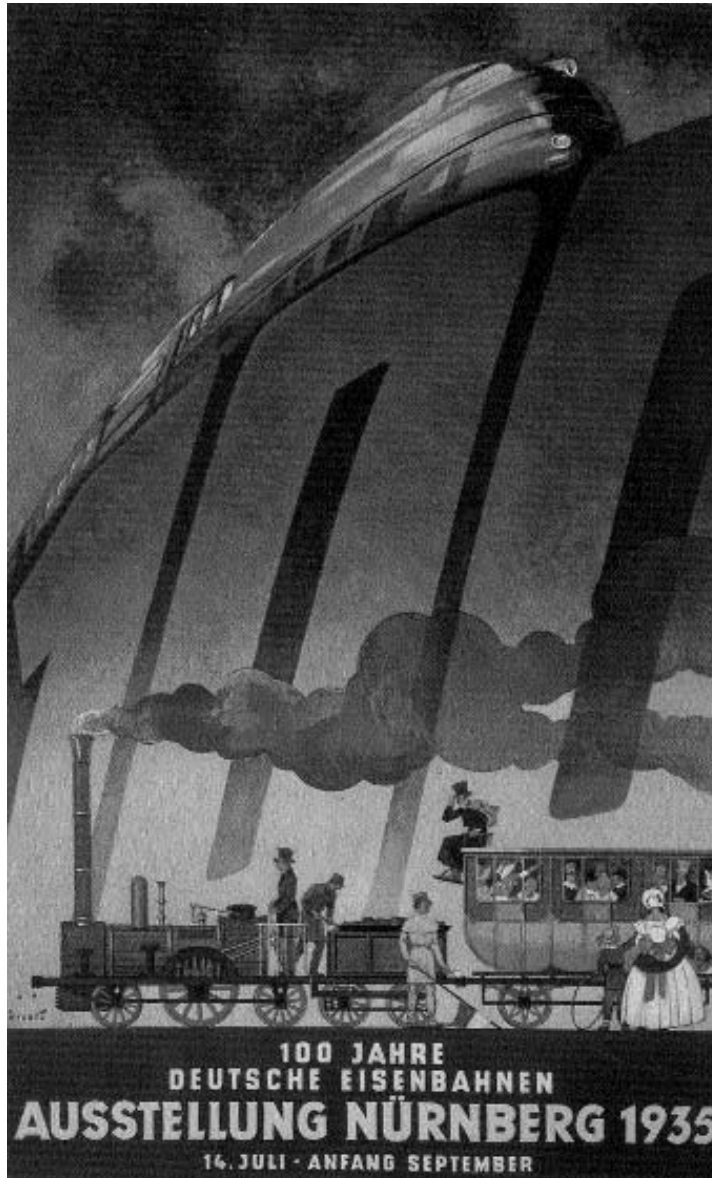


Figure 8

*Collier's* advertisement, 1935, in folder "Streamlining, 1935-1936," Box 59, Egmont Arens Archive, courtesy of the George Arens Research Library, Syracuse University.



Figure 9

Flyer for the "Better Sires, Better Stock" Campaign, United States Department of Agriculture, c. 1921. Courtesy of the American Philosophical Society, Philadelphia.

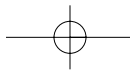
29 Adolf Loos, "Ornament and Crime," 169–70. Loos's statement, "It is a misfortune for a state if the culture of its inhabitants stretches over too great a time span," is based upon the evolutionary idea of arrested development, according to which individuals might exhibit the racial and cultural development of an earlier phase of human evolution, as if the evolutionary process had been arrested and their own development stagnant for decades or centuries. The statement was preceded by his pronouncement that "I am living, say, in 1912, my neighbor around 1900, and that man over there around 1880." It was followed by "On the occasion of the festival procession to celebrate the Emperor's jubilee we shuddered to learn that here in Austria we still have tribes from the fourth century. Happy the land that does not have many cultural stragglers and laggards. . . . These people who lag behind are slowing down the cultural development of the nations and of humanity." This latter statement reflects the notion of evolutionary drag as promoted by eugenicists before the popularization of the concept in streamlining.<sup>30</sup> Brochure for the "Better Sires, Better Stock" Campaign, U.S. Department of Agriculture, c. 1921, in folder "W. S. Anderson," Charles B. Davenport Papers. On Laughlin's exhibit, see *A Decade of Progress in Eugenics: Scientific Papers of the Third International Congress of Eugenics, held at American Museum of Natural History, New York, August 21–23, 1932* (Baltimore: Williams and Wilkins Co., 1934), 488, 503. It must be noted, as was apparent from the name of the campaign, that apparently a person joined the pure-bred parade by procreating from a perfected *paternal* line, not because all females were presumably already of a uniformly high quality, but rather because of genetic researchers' faith in the overpowering vitality of the male seed.



institutional segregation of the poor, unproductive, developmentally-arrested people who were a "drag" on national efficiency; the association of progress and streamlining with the physically, fiscally, and mentally active. The dual-directional flow thus broadly symbolized evolutionary progress in opposition to evolutionary degeneracy. When viewed from this perspective, the German poster for the Nürnberg exhibition elicited a warning similar to, but more subtle than, that emphasized by Loos in "Ornament and Crime" (which he revised in 1929). "The speed of cultural development is hampered by the stragglers," Loos warned. "It is a misfortune for a state if the culture of its inhabitants stretches over too great a time span."<sup>29</sup> Streamlining, of both man and machine, promised to pare away all protuberances that hindered cultural and evolutionary progress by bringing both into line.

This interpretation is strengthened through additional comparison with a promotional pamphlet published by the U.S. Department of Agriculture that was widely distributed through county agents and agricultural colleges [figure 9]. As a push to "Join





the 'Better Sires, Better Stock' Campaign," the top half of the image portrays a group of healthy, well-fed purebred animals marching upwards to the right on a road towards a well-kept, modern farm. Their scrawny, sickly counterparts in the bottom half of the picture tramp downwards to the left on the "Scrub Route" towards a disheveled, collapsing hovel. "Which Way Is Your Live Stock Going?" the flyer asks, and if the road to progress was still unclear, the text exhorted farmers to "Let YOUR Animals March with the Purebreds." This recommendation, although officially directed at farmers and ranchers, pertained to human improvement as well. Harry Laughlin, director of the Eugenics Research Office at Cold Spring Harbor, New York, made this clear through his exhibit of "the elimination of mongrel chromosomes by the pure sire method" at the Third International Congress of Eugenics, held at the American Museum of Natural History in 1932.<sup>30</sup> Although the text of the *Collier's* advertisement implied as much, in comparison with the message of this agricultural brochure, the streamliner thus symbolized the quick intelligence, good form, and high productivity that resulted from a solid genetic foundation.

This relevance of genetics to streamline design is furthered through the last two examples, alternately from Arens and Teague. Between 1934 and 1936, Arens toured the country lecturing on "Streamlining in Nature" at high schools, colleges, junior leagues, and executive meetings of industrialists.<sup>31</sup> He accompanied his talks with numerous lantern slides that gorgeously displayed streamlined adaptations in natural forms including trees, flowers, fish, birds, horse and dogs. For the latter two, he used thoroughbred forms ("Purebred Arabian Horses" and greyhounds), noting as eugenicists did that trainers and breeders could select and shape animals to produce beautiful, functional forms. In his talk, he contrasted a white greyhound [figure 10] with an Irish setter. "Champion greyhound. Here is the same thing without the benefit of the trainer. It comes almost naturally to a greyhound. *It is in his blood.* Men have selected for breeding dogs who showed good form.... *Greyhounds were being bred for lines like these long before the engineers discovered the slipstream.*"<sup>32</sup> Arens emphasized the primacy of purebred genes as a basis for the streamline form over the physical requirements of fluid dynamics, a primacy that reiterated the visual message of the opening slide of his lecture [Figure 11]. For this slide, Arens created an abstraction of two curves to represent "Stream Lines" that more closely resembled the torso of the greyhound than they did the typical representation of a vehicle in the "slipstream." Given the visual similarities with the greyhound and his comments about breeding, his textual separation of the words "Stream" and "Lines" even left room for an association of streamlining as being connected to *bloodstream lineage*.<sup>33</sup>

Teague, too, compared industrial designers with breeders, for in creating perfect designs they were metaphorically functioning

30 Brochure for the "Better Sires, Better Stock" Campaign, U.S. Department of Agriculture, c. 1921, in folder "W.S. Anderson," Charles B. Davenport Papers. On Laughlin's exhibit, see *A Decade of Progress in Eugenics: Scientific Papers of the Third International Congress of Eugenics, held at American Museum of Natural History, New York, August 21-23, 1932* (Baltimore: Williams and Wilkins Co., 1934), 488, 503. It must be noted, as was apparent from the name of the campaign, that apparently a person joined the purebred parade by procreating from a perfected *paternal* line, not because all females were presumably already of a uniformly high quality, but rather because of genetic researchers' faith in the overpowering vitality of the male seed.

31 Egmont Arens gave versions of his streamlining lectures at: General Electric in Schenectady, NY, in late 1936; the Lions Club in Bridgeport, CT, in late 1935; the Auditorium High School Building in Owatonna, MN; the Rhode Island School of Design; a public school in Providence, RI; the Design Laboratory, part of the Works Progress Administration in New York City; the Advertising Club of Wilmington, DE with Du Pont advertisers in attendance; the Dayton Art Institute in late 1936; and the Youngstown, OH, Junior League. See various folders, including "See America Streamlined, 1935-36," Box 51 "Writings," and folders "Streamlining Out of Depression," "Publicity," and "Clippings about Egmont Arens," Box 46, all in the Egmont Arens Papers.

32 All information about Arens's series "Streamlining in Nature" can be found in Box 51 "Writings," and Box 57 "Writings/Lecture Notes/Slide Captions," Egmont Arens Papers. Italics added.

33 Sometimes the word was written "streamline," sometimes "stream-line,"

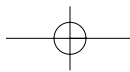


Figure 10

Egmont Arens, lantern slide of a greyhound that accompanied his lectures on "Streamlining in Nature," Box 57, Egmont Arens Papers. Courtesy of the George B. Arens Research Library, Syracuse University.

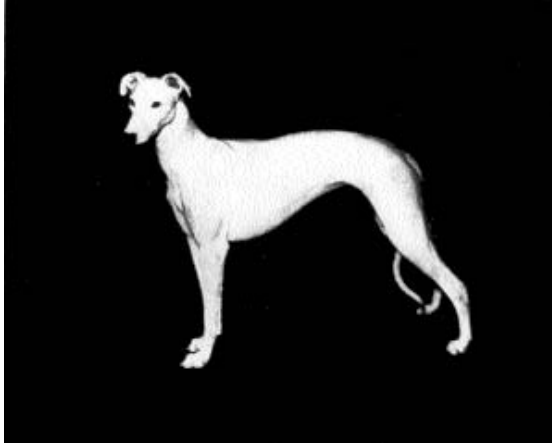


Figure 11

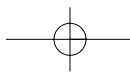
Egmont Arens, lantern slide of a diagram of "Stream Lines" that accompanied his lectures on "Streamlining in Nature," Box 57, Egmont Arens Papers. Courtesy of the George B. Arens Research Library, Syracuse University.



in much the same way as breeders and eugenicists who strove to ever improve the "purity" of selected biological strains. Teague believed that the "aim of design [was] a perfectly functioning organism" and that "certain universal principles" (elsewhere he referred to them as "the basic, unchanging laws of design") were "exemplified in *all* good design." Teague felt that these principles held true regardless of whether the "organism" were a racehorse, panther, oak tree, sword, ox cart, airplane, or motor car.<sup>34</sup> If, for a certain problem, a designer asked himself, "What is this thing for? What is it made of? How is it made?" Teague thought that the composite answer to these questions would gradually reveal "the *ultimate form* which that thing ought to assume," an ultimate form that was, in essence, genetic, as his subsequent explanation made clear. "This *ultimate form* is latent in the thing itself, as the color of our eyes and the shape of our fingers are latent in the uniting cells with which our lives begin."<sup>35</sup> He compared the industrial designer with "some divine designer" (or the accomplished breeder) who could transform a "clumsy, barrel-shaped draft animal" into an efficient, graceful racehorse with "fire and courage in its heart and health in its

34 Walter Dorwin Teague, "The Basic Principles of Body Design," in folder "Miscellaneous," Box 58, Walter Dorwin Teague Papers, George B. Arens Research Library, Syracuse University. Italics added.

35 Walter Dorwin Teague, "Art of the Machine Age" (an address given at the Art Week Luncheon in Boston, 10 Apr. 1934), folder "Writings—Articles," Box 79, Walter Dorwin Teague Papers, and here "stream line."



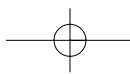
- 36 Walter Dorwin Teague, "Rightness Sells," repr. from *Advertising Arts*, no citation, in Box 79 "Writings," Walter Dorwin Teague Papers. Henry Dreyfuss characterized the relationship between engineers and industrial designers as a marriage that was producing "highly satisfactory offspring"; see Dreyfuss, "The Industrial Designer's Best Friend and Severest Critic" (an address given to the American Society of Engineering Educators at Stanford University, 18 Feb. 1950), on Microfiche #6 "Lectures/Articles by Dreyfuss, 1933-49," Henry Dreyfuss Papers, Cooper Hewitt National Design Museum, New York.
- 37 Paul T. Frankl, *Form and Re-form: A Practical Handbook of Modern Interiors* (New York: Harper and Brothers, 1930), xiii.
- 38 Mark Adams, "Toward a Comparative History of Eugenics," in *The Wellborn Science*, 220-221. On the Jewish promotion of eugenics, see Noam Zohar, "From Lineage to Sexual Mores: Examining 'Jewish Eugenics,'" and Raphael Falk, "Zionism and the Biology of the Jews," both in *Science in Context* 11: 3-4 (1998): 575-585, 587-607.
- 39 Adams, "Toward a Comparative History of Eugenics," 220-221; see also Kevles, *In the Name of Eugenics*, 64; and Diane Paul, "Eugenics and the Left," *Journal of the History of Ideas* 45 (1984): 570.
- 40 Stefan Kuhl, *The Nazi Connection: Eugenics, American Racism, and German National Socialism* (Oxford: Oxford Univ. Press, 1994), 79, 83 and 91.
- 41 "Population of the Empire: Falling Birthrate," the *Times* (London), 10 Aug. 1935," and other clippings in folder "Newspaper Clippings - England, 1935-36," Herbert Spencer Jennings Papers. Although two of the articles in this collection documented the plan of the Nazis to exterminate the Jewish people and the current deprivations of Jews in Germany, the majority of the articles focused on other developments in German political policy. A few of the articles even applauded German eugenic policies for increasing the German birthrate.

veins, so that its eyes flash and its coat is sleek and shining."<sup>36</sup> Once a designer had effected this transformation, his work on that design would *theoretically* be finished and redesign would become, almost de facto, an impossibility. As Paul T. Frankl summarized, "Good forms are few, but they are eternal."<sup>37</sup>

In giving material form to eugenic ideology, streamline designers were not automatically aligning themselves with extremist political positions. Eugenecists, after all, came from a wide array of ethnic backgrounds and expressed highly varied political preferences. Although Anglo-Americans and Nordic Europeans formed the largest contingent of eugenics supporters, many Jews both in the U.S. and in Europe, African-Americans, and Asians also participated in the movement.<sup>38</sup> Of these groups, supporters adhered to a variety of social and political philosophies from the far right to the far left, including "democratic" capitalism, socialism, anarchism, fascism, and feminism.<sup>39</sup> Given that eugenics enthusiasts espoused a wide spectrum of political philosophies, the comparison of streamline designers with eugenecists does not imply that designers supported fascism and totalitarian politics. In no cases do the archival records of the designers in this article suggest that any of them supported Hitler's political totalitarianism or racial policies. Dreyfuss was Jewish, Geddes had many Jewish friends, and Teague possessed such a strict definition of and dislike for totalitarianism that he even criticized Roosevelt's New Deal as too heavy-handed.

However, to be opposed to political totalitarianism did not necessarily require one to also be opposed to eugenic ideals and policies which, in hindsight, seem to us today to tend strongly in that direction. Historian Stefan Kuhl states that the shift away from support of the Nazis by members of the American Eugenics Society in the 1930s was due not to disapproval of the German eugenics program, but rather to Hitler's political totalitarianism, and in many cases where international criticism did target Nazi ethnic racism, in fact most of these critics did not question the fundamental principle of race betterment.<sup>40</sup> The English newspaper clippings about European political developments saved by Herbert Spencer Jennings between 1935 and 1936 support Kuhl's conclusions. Many of the articles criticized German totalitarianism in contemporary international conflicts, while making almost no mention at all of Germany's eugenic social policies.<sup>41</sup>

Political philosophy and socio-scientific beliefs apparently fell into different ideological domains, as shown in part by the wide range of political groups who espoused eugenic principles but used these principles to argue, in many cases, opposing viewpoints. The facility with which this was accomplished owed in part to the malleability of eugenic ideas—to the imprecise and relative definitions of widely used terms such as "fit" and "unfit," the lack of clear understanding about the roles of "nature" and "culture"—and to the overall appeal of human betterment. Together, these aspects





allowed eugenics to appeal to an array of different groups who used a diverse set of rationalizations based upon their personal political beliefs to defend their particular take on eugenic social policies.

Clearly, some prominent advertisers and designers during the streamline era promoted strongly hierarchical, even racist and classist, viewpoints in their speeches, advertising copy, and urban planning visions. Both Meikle and William Pretzer have asserted the totalitarian tendencies of the style. Meikle notes that the key metaphor of streamlining—eliminating resistance and friction—implied “smoothing away, through social engineering, all potential disturbances, whether of action or expression.” He posits that the decline in streamlining resulted from a general recognition of the similarity of its ideals to the “destructive concept of a thousand-year *Reich* in Germany.”<sup>42</sup> In his Marxist analysis, Pretzer describes the style as an anti-democratic, corporate “fiat” that “did not allow for regional, ethnic, popular, or class variations,” one that “emanated from a panic that sought refuge in the planned, orderly and, ultimately, the authoritarian.”<sup>43</sup> The top-down approach of its designers and advertisers, by which they considered the upper classes to be more “civilized” and “modern” and their goal to be the elevation of national taste up to an upper-class ideal, in addition to the eugenic implications of the style’s features, confirm Meikle’s and Pretzer’s interpretations.

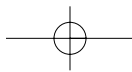
Yet, in some instances, designers and eugenicists expressed humanitarian concerns for the less privileged and included the latter group in their visions of the “world of tomorrow.” For example, in his *Democracy* exhibit for the New York World’s Fair, Dreyfuss envisioned a clean and orderly garden city adjacent to factory towns, mining towns, and agricultural towns, all of which he saw as being as interdependent as the various types of workers they housed. “Even Wall Street and Nebraska wheat growers can’t get along, each without all the others.” During the *Living Mural* part of the exhibit, film, music, and lighting were combined to produce a utopian, multimedia spectacle parading images of the workers of the world—including farmers, miners, religious and educational leaders, and “men and women representing all the occupations”—across the domed sky of the “Perisphere” in a flash reminiscent of the Aurora Borealis.<sup>44</sup> In Arens’s exhibit at the fair, *Three-Thirds of a Nation*, he argued that in order to preserve democracy, the lowest portion of American society in terms of income, health benefits, nutrition, and sanitation needed to be improved, for otherwise the symbols of technological progress would only serve as a “mockery to the dispossessed.”<sup>45</sup> In *Land of Plenty* (1947), Teague also expressed his concern that “the elevation of the lower levels” was “our Number One national imperative,” for “deficiencies in living conditions produce deficiencies in health, mentality, and morals, and these in turn reduce ability to contribute to the national welfare.” Although his ultimate intentions resembled those of eugenicists

42 Meikle, *Twentieth-Century Limited*, 186, 187, 210.

43 William Pretzer, “The Ambiguities of Streamlining: Symbolism, Ideology, and Cultural Mediator” in Fannia Weingartner, ed., *Streamlining America*, Ex. Cat. (Dearborn, MI: Henry Ford Museum, Sept. 1986–Dec. 1987), 88, 91, citing Ernest Elmo Calkins from *Printers’ Ink* (23 Sep. 1930).

44 Henry Dreyfuss, “Scheme for the Theme Exhibit: A Resume of What Will Take Place in the Perisphere at the New York World’s Fair, 1939,” 13 Dec. 1938, on Microfilm Roll #3 “World’s Fair,” Henry Dreyfuss Papers.

45 Egmont Arens, “Three-Thirds of a Nation—The Problem of Distribution” in folder “World’s Fair,” Box 36 “New York World’s Fair 1939,” Egmont Arens Papers.





trying to increase national efficiency, the population he proposed to target reveals his humanitarian intentions.<sup>46</sup>

By aligning themselves with eugenicists in their shared role as the chief agents of evolutionary progress, and by approaching products as bodies in need of the same types of reforms as those promoted by eugenic ideology, streamline designers exhibited their faith in contemporary science, technology, and their own newfound profession to serve as the true progenitors of an orderly future world.

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46 Walter Dorwin Teague, *Land of Plenty: A Summary of Possibilities* (New York: Harcourt, Brace and Company, 1947), 221.

