

Mutant Materials in Contemporary Design, exhibition, Museum of Modern Art, New York.

Review by Victor Margolin

Mutant Materials in Contemporary Design is the first major exhibition of industrial design to have been held at New York's Museum of Modern Art in eight years. It has received considerable attention from the press and has reaffirmed MoMA's power as an international showcase for new art and design. Organized by Paola Antonelli, Associate Curator in the museum's Department of Architecture and Design, the exhibition, which ran from May 25 to August 27, featured close to two hundred objects by designers from around the world. Ranging from a rubber pushpin to a carbon fiber airplane, the objects demonstrated how advanced technologies in many different industries have radically altered the familiar qualities of well-known materials such as glass, wood, metal, plastics, and ceramics. In addition to the handsome catalogue whose hardback version has plastic-resin covers by Gaetano Pesce, there is also an electronic version of the exhibition on a specially designed Internet home page with explanatory texts and many color reproductions. This version can be accessed at <http://www.sva.edu/moma/mutantmaterials>.

Truth to materials, declares Ms. Antonelli, is no longer a factor in design. Years of design theory which claimed that designers and architects had to learn and respect the qualities of the materials they worked with, have been overturned by the increasing capabilities of engineers to endow existing materials with properties and qualities they never had before and the ability to invent new materials to suit pre-determined needs. This shift from working within the bounds of nature to creating new resources to satisfy human goals signifies a particular triumph of artifice over nature and raises new and important questions about the possibilities and limits of invention.

The idea of mutant materials, however, is not new. The military needs of World War II, which yielded such synthetic materials as nylon, fiberglass, and lucite, provided the first major impetus for sustained materials research. The subsequent commercial success of products made from these materials - nylon stockings, fiberglass chairs, and plastic food containers - continued to justify materials research within industry. This work was given further impulse in the 1960s by the United States space program with its demands for lighter and more durable metals, plastics, and synthetics of various kinds.

Only in today's cultural climate, however, has the idea of mutant materials begun to operate as a powerful social metaphor, due particularly to advances in biotechnology that have raised previously unconsidered questions of where we draw the line between nature and our manipulation of it. Aggressive entrepreneurs push the edges of ethics and the imagination as they literally invent new species of plants and animals for commercial purposes while, in novels and films, we see the outer limits of this new technological knowledge in the form of replicants,

androids, cyborgs, and other mutants who straddle the boundaries between the natural and the artificial. This lack of stability and fluidity of identity in the realm of biology has now moved into the cultural sphere to become one of the basic tenets of postmodern cultural theory.

Hence, the theme of *Mutant Materials in Contemporary Design* is very timely. In a way that may have surprised many viewers, however, the exhibition was scarcely about materials that conjured up futuristic science-fiction scenarios. While there were occasional mind-bending displays of extraordinary materials such as the Viracon glass panel with a picture laminated on one side that is invisible from the other side where the glass retains all its properties of transparency and Takeshi Ishiguro's 'Light Light' with its thin carbon fiber body and feather shade, Ms. Antonelli also devoted considerable attention to products made of recycled materials such as Maderón, a wood substitute created from crushed almond shells, resin, and other lignocellulosic materials. This material, which provides a use for tons of almond shells that would have otherwise been waste, can be treated for heat resistance and, like thermoplastics, can be injection molded. In addition to a sample of the material, the exhibition included several elegant pieces of furniture made from it such as Alberto Liévore's "Rothko" chair, and a new edition of Antonio Gaudi's Casa Batlló chair. Other uses of recycled materials to create striking forms could be seen in Philip Stark's "Jim Nature" television housing made of compressed sawdust, Gino Colombini's colorful wastebaskets produced by Kartell from recycled plastics, and the shapely garden tools by Todd Wood and Allen Simpson made of recycled die-cast polished aluminum. While the previously mentioned products, with the exception of Stark's television, hardly revealed a new aesthetic of recycled materials, Gaetano Pesce's dramatic "Seaweed" chair and his three colorful ottomans visually exploited the rough identity of waste fabrics which were cut in strips, dyed, and dipped in resin.

Pesce's highly artful and challenging furniture defined one of the exhibition's extremes, which was rooted in the issue of new uses for 'poor' materials; the other extreme was delimited by objects representing the high-tech image of materials that possessed exceptional properties of tensility, durability, flexibility, or lightness. One could see this in Alberto Meda's "Light Light" chair, a single piece of molded carbon fiber that weighs less than a sack of tomatoes, the thin slivers of the 'Leapfrog' computer designed for IBM by Richard Sapper and Samuel Lucente, or the lightweight shell of the "Sea Lion" kayak, made of molded carbon fiber, Kevlar, S-glass, and Spheretex, a special woven fiberglass. An important social value of using new lightweight material was evident in the folding "Carna" wheelchair, designed by Kazuo Kawasaki, with its titanium frame and aluminum honeycomb-core disk wheels.

Another important theme in the exhibition was the way that new materials can improve product performance. There was a pair of glasses that were thinly coated with an extremely durable material developed by Bausch & Lomb and known as DLC, which can make a surface resistant to scratching, chemicals, or water. Also on display was a wet suit of neoprene, designed

by Stephen Peart and Brad Bissell who worked with a new molding system to create a product that has the appropriate thickness to maintain body heat while also possessing thin sections that allow flexible movement. Perhaps the most notable object to demonstrate the high performance quality of new materials was the "Aeron" office chair for Herman Miller by veteran designers Donald Chadwick and William Stumpf. The chair's aluminum frame is extremely flexible, allowing for a high degree of tilt action and multiple stationary positions for the armrests. The polyester fabric on the seat relieves sitter strain by changing its shape and only responding in localized areas. When the sitter gets up, the fabric's almost perfect 'memory' cancels the deformation.

The term 'memory' was used more than once in the exhibition to describe materials that were extremely responsive to the physical conditions they encountered. The anthropomorphic implications of this term suggest a future of smart materials that was only hinted at in the MOMA exhibition. In the years ahead we may see a closer convergence of materials science and electrical engineering that could result in materials which will operate with an intelligence not yet present in most of the products on display at MOMA.

The organization and design of the exhibition followed a traditional MOMA rhetoric that can be traced back as far as the "Machine Art" show of 1934 where objects with different types of uses such as airplane propellers, ball bearings, and glass beakers were assembled to demonstrate how the 'machine' metaphor had influenced product form. Organizing the objects by material in the current show did result in a dazzling display. Presented on a series of curved podiums and platforms and in plastic cases, the objects were illuminated with high beam spotlights that contrasted them with the dark interior of the exhibition space. The show thus had a strong formal coherence which, however, marginalized other important narrative themes such as the way new materials are contributing to a more ecological future, and how they improve product performance and quality. One would also have liked a better sense of how the dramatic applications of materials research are shaping the image of our lives in the future. This was more than hinted at by the extreme variety of objects in the show but could have been better developed through a different mode of presentation that put greater emphasis on the social meaning of the objects rather than their formal appearance. Nonetheless, *Mutant Materials in Contemporary Design*, by highlighting the differing and complex meanings of new materials, has helped to shape a realistic debate about the way we might live.

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