

architecture, design, and a changing world

METROPOLIS

JUNE 1998

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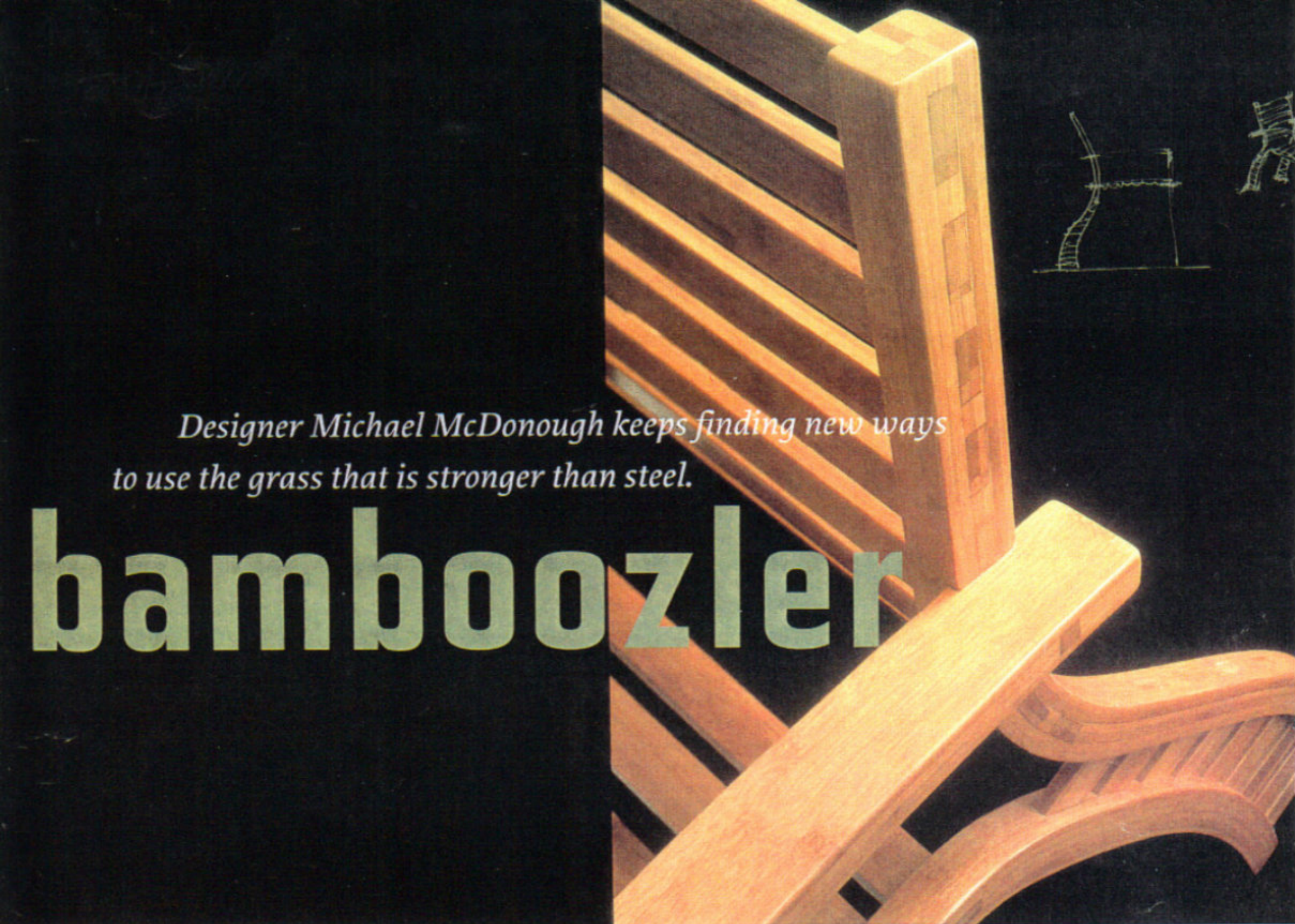
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Designer Michael McDonough keeps finding new ways to use the grass that is stronger than steel.

bamboozler

thinking of research and development departments like Lockheed Martin's "skunk works" as models of practical innovation.

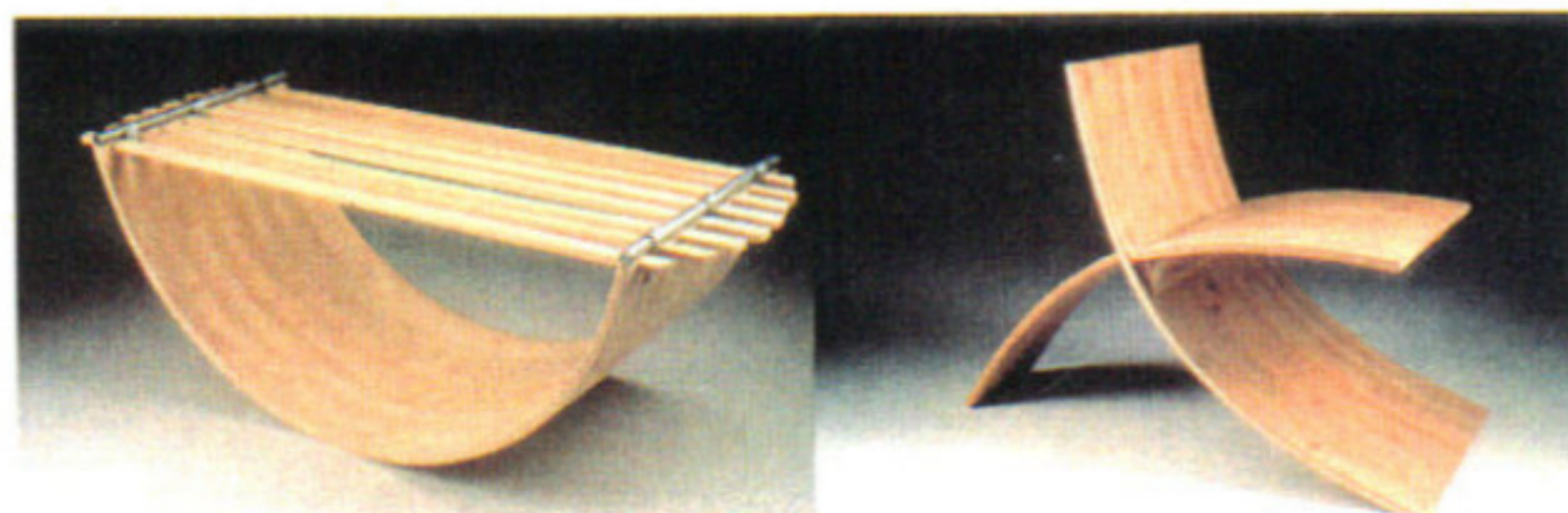
It was a combination of social consciousness and technological and aesthetic curiosity that led McDonough to begin working with bamboo, the material that has been an important component of his most recent experiments. Bamboo appeals to several of his inclinations, since it is light enough to be made into furniture and strong enough to be used in architecture. It is also a renewable material whose cultivation can help control erosion, clean the air, and provide income to impoverished populations. McDonough's first bamboo products, a table and chair, are manufactured by Summit Design Studio and were introduced last year at Interplan, the annual contract furniture trade show in New York City.

The chair is sleekly modern looking, with arms like hyphens jutting forward atop curving front legs. In its spareness, it resembles metal furniture. "Bamboo is stronger than steel in tension," McDonough says. "So I thought the best thing to do was just use it like steel." The chair's "exploded" back legs are its most striking feature, a shape that is echoed in the base of the table. With their horizontal slats, the legs suggest an arc or a bridge—a fitting allusion for a material that is used

in Asia as scaffolding on construction sites. The bell shape of the legs is inspired by the unusual "tortoise" growth pattern that appears in some bamboo species, and the laminated surface of the table shows off the bamboo's naturally variegated color. Both pieces are a kind of bamboo demonstration, but in a shapely, sculptural mode. Among all of McDonough's material "investigations," these may be the objects with the broadest commercial appeal.

McDonough first became aware of bamboo's potential three years ago, through his acquaintance with Linda Garland, an interior designer who heads the Environmental Bamboo Foundation in Bali. In 1995, he attended the EBF's annual International Bamboo Conference, where he met a community of "bamboo luminaries"—scientists, politicians, and other designers from around the world who are dedicated to promoting the use of bamboo. McDonough learned that for all its useful structural properties, the plant is more often viewed as a weed than as a valuable raw material. Known as the poor man's lumber, it grows on six continents, "in everybody's backyard." What's more, bamboo is often least valued in areas of the Southern Hemisphere where its cultivation could do the most economic and environmental good.

McDonough continued his research with visits to bamboo 113→



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growers and users worldwide. "I went to the leading bamboo nursery in Europe, the Bamboueraie, near Nîmes, France. I interviewed Charlotte Perriand, who had designed bamboo furniture in the late 1930s. I ate bamboo cuisine in Taiwan, checked out bamboo musical instruments in New York," he says. "Then, working with a craftsman in Miami, I had several 'alpha' furniture models made." As McDonough worked, he considered not only the forms he could make from bamboo, but the argument he would make for bamboo through these forms. "One of my goals was to sort of make this ma-

course in the furniture department of the Rhode Island School of Design (RISD). Like McDonough, department head Rosanne Somerson believes that innovation in design depends on the capacity to do long-term, open-ended research and development (see "The Master Class," May 1997). She would like manufacturers to look to RISD as a source of innovation—much the way technology companies look to places like MIT—rather than confine themselves to market-driven design. Having been approached by Garland and the Environmental Bamboo Foundation, Somerson thought that bamboo

would be an ideal topic for the first research course. She enlisted McDonough to teach and help plan the studio.

The course began much the way McDonough's research had, with discussions of bamboo's history and botany. He introduced the various bamboo materials available—including plyboo (a bamboo plywood) and bamboo veneer—and the tools traditionally used to cut and split the culms. But then McDonough let the students develop their own techniques, inviting them to build what they wanted and to treat the material any way they could think of. With only 10 weeks to work, the

class attempted a multitude of construction methods. "We made ladders out of it, and structural elements to see how much weight could be put on it," reports student Gia Sung. "We mashed it up, we put it through wood chippers, sliced it into rings... we just went crazy." In the process, says her classmate Susanne Olsson, "we found out how far we could push the material." Olsson designed and built a bench whose base is an inverted arch of very thin plyboo; she was surprised to find that it could easily support the considerable weight of a large person.

As a component of the course, 115→

Like McDonough, RISD department head Rosanne Somerson believes that innovation in design depends on the capacity to do long-term, open-ended research and development.

terial an object of desire, to revalue it as a sophisticated material, and to re-export it back to the Southern Hemisphere, or back to the cultures where it's not valued." By reclaiming and innovating ways to manipulate bamboo, he hoped to position it in the context of the high-tech design that the developed world knows and understands.

This is where the engineering aspect of his work came in: he needed to devise structures that would exploit bamboo's strengths. This is not an easy task, as McDonough found out when he studied two prototype cantilevered bamboo chairs that Alvar Aalto had designed in 1939, before World War II put an end to the project. McDonough discovered that there had been a structural problem with Aalto's design: Aalto had used traditional concealed mortise and tenon joints to connect the pieces of the chair, "as you would [do] if it were oak or maple or another deciduous wood," McDonough explains. "And they all cracked. Aalto was a master, and he knew wood, obviously. But bamboo is grass, not wood, and it has different properties." Drawing upon Asian joinery techniques, McDonough extended slats of laminated bamboo all the way through the frames of the table and chair. He continues to improve the design for future versions, "tweaking the bends and connections" and adding a second color choice. He has also developed several new chairs.

Last fall, as the Summit pieces went into production, McDonough introduced both bamboo and materials research to a few members of the next generation of designers, in a studio

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