THE URBAN WILD

An architect's vision for a new kind of aquarium.

BY AMY WALDMAN

Dolphin Bay, at the Texas State Aquarium, in Corpus Christi, is a twelve-foot-deep, pale-blue pool with a concrete bottom. It is home to Kai and Shadow, two Atlantic bottlenose dolphins the color of storm clouds. Twice a day, they perform in a show that is meant to inspire visitors to "help protect our planet," the m.c. tells the audience. For the promise of dead fish, the dolphins ferry rubber ducks, leap and twirl, and wave and bow to the beats of Katy Perry. At the beginning of the show and again toward the end, Kai and Shadow rise on cue to flap their pectoral fins for their corporate sponsor, Whataburger.

On a Sunday in March, Jeanne Gang sat in the bleachers and looked out onto the bay that flows next to the aquarium. A pod of dolphins was surfacing among the waves, though most of the audience seemed not to notice. The juxtaposition of captive and wild transfixed Gang. "Jump!" she urged Kai and Shadow after the show, half in jest. Gang, who is fifty, has striking blue-gray eyes, brown curls, and a casual air. She is best known for designing Aqua, a tower in Chicago, which was completed in 2010. To maximize views and shade, she unevenly distended the concrete balconies on each floor, creating a rippling surface that suggests a natural topography—hills, valleys, pools—rising into the air. At eight hundred and fifty-nine feet, it is the tallest structure ever designed by a female-led firm.

Design awards, a MacArthur Foundation fellowship, and international acclaim followed the building's construction. More tower commissions did not, in part because of the global recession. Instead, Gang took her practice deeper into an area of long-standing interest: the relationship between nature and culture. Last year, the National Aquarium, in Baltimore, asked her to help express, through design, a signal change in its mission. It wanted to move from being an aquarium that dabbled in conservation to being a conservation organization that has an aquarium. And, at a time of growing public unease about keeping cetaceans in captivity, it was contemplating something unprecedented: moving its eight dolphins to a sanctuary.

For months, Gang read up on the cognitive and social capabilities of dolphins. At Rice University, in Houston, where she was teaching for a semester, she asked her class to design dolphin sanctuaries. On the weekend of the dolphin show, she had brought eleven students to the Gulf Coast to do research. She was also conducting research of her own. The day before the show, the group drove to Port Aransas, Texas, and boarded a thirty-six-foot catamaran called the Kohootz. As the boat headed out into the Corpus Christi ship channel, Gang and a few students climbed to the top deck. The air teemed with birds: Gang pointed to a brown pelican flying by, then to a colony of white ones resting on an island shore. But the sea, the least architected space on the planet, stretched blankly before her. Nothing hinted at the life beneath the waves until a bulletin came over the loudspeaker: "There's some dolphins over there."

"Oh!" Gang exclaimed. It was her first glimpse of dolphins in the wild, although wild was a relative term. The dolphins frolicked near a built-up shoreline and played in surf churned up by a giant barge. Even the Jimmy Buffett blasting through the boat's speakers was an attempt to "speak" to the cetaceans, which, the boat's captains believe, now recognize the steel drums and sax notes reverberating through its aluminum frame. "I'm amazed they coexist with all this," Gang told her students.

For the next hour, Gang watched dolphins surface and then dive back into the water. She and her students cooed over a chocolate-brown newborn small enough to slip through a pair of hands. Too young to glide, it instead popped up, then down. "I'm so glad we saw the wild dolphins first," she said after the Dolphin Bay show. "The students on the boat were making all these sounds: 'Oh, oh.' Today, they were just sitting there, horrified." Gang hasn't been to a zoo since childhood. Her discomfort with cetaceans in captivity is partly a matter of personal ethics, but it's also a response to poor design. There must be a better way to inspire city dwellers to care for the vast, invisible wilderness that is the ocean, she believes, than by using "a swimming pool painted blue with dolphins swimming around."

The offices of Studio Gang Architects occupy an entire floor above an Aldo shoe store in the Wicker Park neighborhood of Chicago. To reflect the firm's collaborative nature, the plan is open: only Gang has an office, and it is walled with glass. The windows are plentiful, the natural light abundant, the recycling obsessive. The space smells of freshly milled wood, except for the model shop, which smells of epoxy. The whir and drone of its power tools often filter into meetings.

Pieces of wood, concrete, and marble are everywhere in the studio. Material research is Gang's "playtime," she says, and also integral to her work. In 2003, at the National Building Museum, in Washington, D.C., she created an eighteen-foot-high curtain from six hundred and twenty puzzle pieces of marble cut so thin that the light shone through, revealing what she calls the stone's "secret mystery." The curtain hung in tension, its fifteen hundred pounds barely touching the floor. No one, to Gang's knowledge, had tried this with stone before.

Gang loves wood. At Lincoln Park Zoo, she wanted to bend a kiosk into the shape of a tortoiseshell; she consulted boatbuilders to learn how. For the final structure, small laminated pieces of Douglas fir were soaked and then glued together to make curved ribs that

"It's impossible to replicate nature—it's too good," Jeanne Gang says. "It's about trying to find that space where it's art."

PHOTOGRAPH BY JENNY HUESTON

snapped together, with fibreglass pods between, on the site. For a social-justice center now being built at Kalamazoo College, Gang revived a local vernacular tradition of using cordwood instead of bricks for masonry. She found "an old-school hippie," as she describes him, to train her staff and contractors. Embedded in mortar, the crosscut white-cedar logs evoke, in their density, a tightly packed crowd.

Gang has little interest in form alone and has written critically of master refiners who simply hone the same design and details at ever greater cost. Blair Kamin, the longtime architecture critic for the Chicago *Tribune*, credits her for refusing, after Aqua, to "indulge in a facile repeat of that success." Her marriage of thinking and building, he believes, places her in the tradition of Rem Koolhaas, for whom she once worked. And her attention to material and detail, Kamin adds, recalls Louis Sullivan and Ludwig Mies van der Rohe.

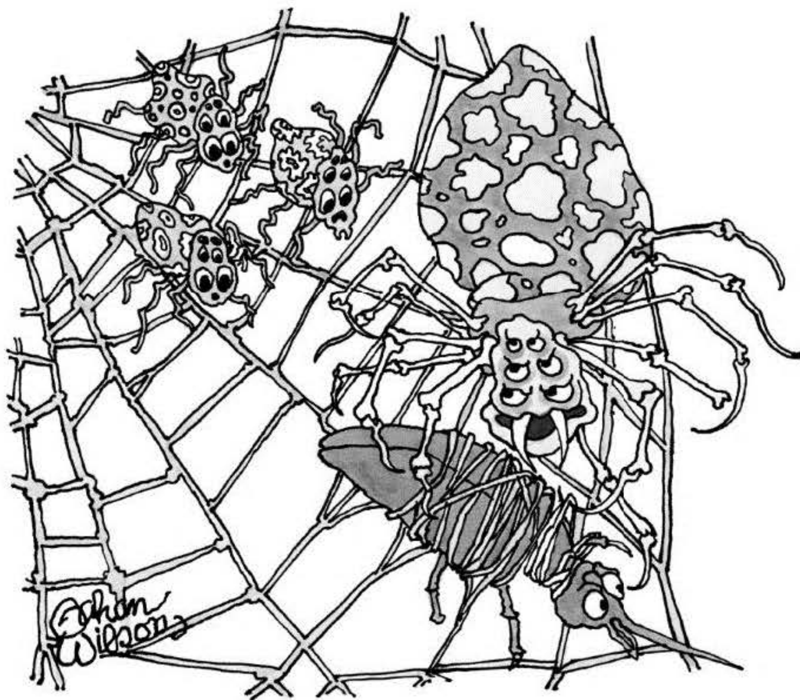
None of Gang's structures resemble one another. Some of her projects are not structures at all. At Lincoln Park Zoo, where she built her tortoise kiosk, she revived a stagnant pond by deepening it, ripping out a concrete rim, and edging it with plants that would help clean the rainwater. Today, South Pond is a thriving metropolis of insects, ducks, migrating birds, butterflies, turtles, even coyotes—"a zoo without cages," Gang calls it. The reeds next to a boardwalk that she also designed rustle with hidden life.

Gang wants to restore wildness to nature in urban settings. But she also believes in using design to make nature "legible," as she puts it. On the edge of Lake Michigan, construction is under way on a far larger Gang project: a plan to turn Northerly Island, a ninety-one-acre man-made peninsula that once housed a small airport, into a vast public park. Gang's design includes an amphitheatre, a concrete reef to soften the waves, and hills to offer rest to migrating birds and views to humans. On a fall morning, in finger-stiffening cold, Gang walked next to the lake, which groaned audibly in the wind. She was looking for birds, of which there were few, but the setting provided compensation: the sky marbled with clouds and light, the water a pale metallic blue, the wild grasses a seductive burnt orange. Some landscape architects had criticized her site plan, which also featured paths and a mosaic of hexagonal plantings, for not looking "natural" enough. "It's impossible to replicate nature—it's too good," Gang told me. "It's about trying to find that space where it's art."

Gang grew up in the small town of Belvidere, about seventy miles northwest of Chicago. She spent most of her free time outside, building tree houses and forts, roaming the preserved remnants of wilderness on the edge of town. Her father was the civil engineer for Boone County, and he took Gang on formative early-morning trips to look at bridges, roads, and natural landscapes. Her mother, a community activist and later a librarian, also influenced her: Gang prefers projects that tackle social problems, notably how to create environmentally sustainable cities. Her mother led Gang's Girl Scout troop, an experience she replicates, in a fashion, each summer, when she holds a rustic retreat for her staff, often instructing them in a Scout skill.

Her practice has an active research arm that intersects with but also operates independently from her projects, compiling discoveries about everything from water systems to ecology to tower typologies. Her first step on a new project is to assemble a relevant library of science, history, art, maps, even fiction. When Chicago's mayor, Rahm Emanuel, asked her to design two new boathouses along the Chicago River, Gang looked at the prints of the nineteenth-century photographer Eadweard Muybridge, who captured, in stop-motion images, the articulated movements of rowers. Her design re-creates the rhythm with structure: the roof undulates like an oar's rise and fall. Because the peaks repeat, so do the clerestory windows, which suffuse the space with southern light. In a workout room, the natural warp of the plywood that sheathes the roof trusses makes the ceiling look like the bottom of a boat.

One spring day in 2012, Gang and her boathouse team gathered in a room whose walls were papered with construction drawings. The project was on an unusually tight schedule: Emanuel wanted the first boathouse opened by the summer of 2013. (It opened that fall.) Her team had been "working like crazy," Gang said. "That's why they look really tired right now." ("We don't think we look that bad,"



"O.K., children—now comes the fun part!"

one young architect joked when Gang stepped away.)

Gang had just visited Princeton's boathouse, and its well-lit, well-used club room had made her worry about her boathouse's equivalent. "How are we conceiving of it?" she asked the team. She wanted to better understand the placement of the columns and the trusses in the room, how the roof would look, where the light came in. She began to think out loud, scribbling revisions on drawings. She had already added, the previous day, an open staircase to connect the first and second levels of the boathouse. Now she reoriented the rowing tanks so that they wouldn't face the glare of the sun, relocated the storage of chairs ("Phew, I'm feeling better," she said, once she had them safely tucked out of sight), and added panels of natural light to the bathrooms.

The project leaders were men. Gang was solicitous of their opinions and comfortable overruling them. Her manner, low key, even reserved, only somewhat obscures her drive.

"Have you guys ever put a backpack in a foot-deep shelf?" she asked at one point, critiquing a series of cubbyholes.

"I don't carry a backpack."

"How about your guitar?"

As she drew, she asked whether the changes she had made would add "tons of time."

"Well, yes," came a reluctant response.

"It's not that much—we already did the stair last night," Gang said.

She asked if they were modelling the second boathouse, which was at an earlier stage. No models, the team told her, blaming the "constant fire drill" of the expedited schedule. Gang countered that they could make a model from the elevation drawings, which portray a building's façade: "Let's do it now!" As her weary team mostly watched, she began to cut the drawings and fold and tape them into three-dimensional objects. "This is so helpful compared to looking at elevations," she said when she finished.

The task of helping the team execute Gang's changes and, when the schedule became imperilled, stopping her from making more would fall to Mark Schendel, the firm's managing principal and also her husband. He had peeked in on the way to a dentist appointment to remind Gang that they were on a "very, very tight" schedule, a warning she seemed to only half heed. Schendel is lean, short-haired, and hyper-organized. His motto, attached to every e-mail, is "Accuracy, Neatness & Concentration." From his hub in the middle of the studio, Schendel supervises the firm's staff of fifty-six and keeps projects on budget and on time. In architecture, where more often the man is the lead designer, theirs is an unusual partnership. "He supports me," Gang says. "It's in his DNA."

They met in 1993 while working for Rem Koolhaas, in Rotterdam, where Gang had moved after completing graduate school, at Harvard. Gang recalls telling Schendel that "I didn't want to work for men, I didn't want to be bossed by them. It made me uncomfortable. I didn't want to be shunted into interior design, and I saw how these practices work. I wanted the freedom to explore my own interests." She decided to settle in Chicago, and Schendel soon followed. The city, despite its storied skyline, had become architecturally sleepy by the mid-nineteen-nineties, a void that Gang hoped to fill. So far, all of her built work is in the Midwest, most of it in or near Chicago. (She was recently chosen to design a firehouse in Brooklyn.)

Gang and Schendel live in a century-old apartment with thick walls and huge windows that look out onto Michigan Avenue. They have customized the space with a sleek Italian kitchen (Schendel is the primary cook) and doorways heightened to nine feet or more. In place of interior walls are stepped bookcases that their cats can climb. Part of one shelf is given over to dirt—russet, green, brown, gray, and white soil—collected by Gang during her travels and displayed in an arresting collage of tiny, stacked acrylic vitrines.

The couple have no children (Schendel has a son from a previous marriage), and they spend most of their time working. "It's exhilarating work," Schendel says. And demanding: Gang often visits three cities in a week. She must compete for commissions against larger, more established firms, and break the news to her junior architects when they lose. Only a small number of female architects in the U.S. are as prominent, and her singularity can sometimes seem solitary. She collaborates widely, but mostly with non-architects. She has little time to spend with friends. "My colleagues are my friends," she said, then added, "They work for me, so maybe they don't see it that way." Her firm is mostly female, but the developers, engineers, and contractors on most projects are not. Nowhere is this more true, Gang says, than in the building of towers: she is often the only woman in the room.

Institutions, like materials, have secret lives. Few visitors to the National Aquarium's tranquil new attraction, Blacktip Reef, a painstaking assemblage of artificial coral over which black-tipped sharks, stingrays, and a rescued three-flippered sea turtle glide, know that the space housed a dolphin "tray" when the aquarium opened, in 1981. The tray was small, with only two hundred and sixty thousand gallons of water; and it was dark, chlorinated, and, with reverberating pumps, noisy. Within months of its opening, one dolphin was dead and three others had been shipped off, with ulcers, to a dolphin swim program in Florida, where one still lives today.

When the aquarium next tried housing dolphins, the tank was five times larger, the light in the glass Marine Mammal Pavilion plentiful, and the soundproofing and science more advanced. For more than two decades, the dolphins did up to seven shows a day, until, in 2011, John Racanelli took over as chief executive. In his first week, two of the aquarium's dolphin calves died, of unrelated causes. A year later, he retired the dolphin shows.

Racanelli is a surfer, a sailor, a swimmer, and a diver, and a lifelong advocate for the ocean. He was one of the first employees at the Monterey Bay Aquarium, where cetaceans have never been displayed. In a 2011 speech, he dismissed the notion that captive dolphins and whales are "ambassadors for their species" as a "well-worn familiar old saw," one that was becoming less relevant each year. In place of the shows at the National Aquarium, he threw open the pavilion doors, so that visitors can wander in at leisure and stay as long as they please. The dolphins mostly swim and sleep, and at informal intervals display, in conjunction with their

trainers, learned behaviors such as fetching rings or aerial leaps. But many visitors still come expecting a show, in part because the architecture—bleachers arrayed around the tank—cues them to. "We trained the humans" to expect dolphins to perform, Racanelli says. The new approach, perhaps unique among aquariums, aims to retrain them.

Bayley, the youngest of the eight dolphins, is five. The oldest, Nani, is forty-two. Racanelli would prefer that they not live out their years in a tank. "There are chimp sanctuaries, orangutan sanctuaries, gorilla sanctuaries, elephant sanctuaries, big-cat sanctuaries, bird sanctuaries," he says. "And there's probably a lot of sanctuaries I don't even know about—horses and police dogs. And there's not yet a dolphin sanctuary. What's that about?" He considered creating a sanctuary, perhaps a series of sea pens, in a different location, and using the pavilion for another purpose. He sought out Gang to create a new master plan for the aquarium.

They met in 2012, when Racanelli, Gang, and Schendel joined a research tour, organized by a London-based firm, IMPACTS Research and Development, to evaluate European museums. The firm's founder, an American named Scott Corwon, helps museums and similar institutions draw more visitors and assess whether a proposed new building or attraction will find enough of an audience to justify its expense. Usually, he says, the answer is no. Gang had been collaborating with Corwon to test some of her design ideas. Too much of architecture, she believes, involved small boards of trustees inventing visitor projections to justify their whims. (Corwon describes this thinking as "If you build it, they will come.") Gang wanted data that would tell her whether a design would resonate with the public.

Racanelli has worked with Corwon for years, and learned more about Gang from him. That she had no experience designing aquariums was part of her appeal: Racanelli and his board of directors wanted a conceptual thinker. "The thing these guys do that I've never seen before is just ignore the rules and come up with a great idea," he says of Gang and Schendel.

Racanelli aimed to keep the National Aquarium's building but transform the experience it offered. When the aquarium opened, on Pier 3 in Baltimore's Inner Harbor, its brutalist architecture drew acclaim. It was aquarium as theatre: the architect, Peter Chermayeff, was also an aspiring filmmaker, and the interior layout "directs" visitors, as in a long tracking shot, using darkness and light, ascent and descent, to create drama. Over the years, the aquarium expanded, adding glass pyramids for new exhibition areas, including, in 1991, the dolphin pavilion, on Pier 4. The additions have created so much confusion that today human "greeters" wait at key points to direct visitors; it can be difficult to successfully navigate the building on your own. Racanelli wanted more clarity, and more choice for visitors. He wanted more connection to the harbor, to which the building now turns a cold, concrete shoulder. He wanted a new identity for Pier 4. And, if the aquarium was still going to offer theatre, it would be theatre with a purpose. As climate change, overfishing, pollution, and the hunt for resources alter the sea's chemistry and ecology, he hoped to mobilize the aquarium's 1.3 million annual visitors—and its far larger audience on social media—on behalf of the sea and its inhabitants. "I want to change how humanity views the ocean," he told Gang.

She asked, in response, how humanity views the ocean now. After ingesting materials ranging from "The Sea: A Cultural History" to the ocean explorer Robert Ballard's TED talk, she produced a history of a human relationship with the ocean that has been characterized by romance and ignorance. Only five per cent of the ocean has been explored. NASA's budget is more than three times that of the National Oceanic and Atmospheric Administration. Hundreds of explorers have undertaken space travel, Gang noted, but only a handful have ever reached the Mariana Trench, the deepest part of the world's oceans. How could anyone persuade the public to help protect something it knew so little about?

In thinking about the aquarium's dolphins, Gang read books like "In Defense of Dolphins" and "The Dolphin in the Mirror," both of which make the argument for dolphins as sentient creatures. New research (often conducted, paradoxically, on captive dolphins) has revealed new cetacean capabilities. The same qualities that led to

Aqua, the Chicago skyscraper that made Gang an architectural star.

COURTESY STEVE HALL/HEDRICH BLESSING

Gang's boathouses on the Chicago River are inspired by Eadweard Muybridge's stop-motion photographs of moving rowers.

dolphin captivity—their charisma, their intelligence, their sociability—are now becoming arguments against it. Gang believes that the public is slowly turning against confining cetaceans, in part because of documentaries like "Blackfish" and "The Cove."

Corwon's research seems to bear her out. He has been tracking attitudes on the subject for eight years. His data show a generation gap: millennials (those under thirty) are more likely than older Americans to oppose keeping marine mammals in captivity. Corwon offers an analogy to attitudes toward gay marriage: "It's changing slowly, it's changing slowly—it changed. Even very learned people think it's going to be a glide path. It's not—it's going to do what every other movement does." His hand moved sideways, to indicate a plateau, then shot up. In his view, an aquarium that builds a dolphin tank to attract visitors may eventually repel them.

In early March, Racanelli flew to Chicago to hear some of Gang's design proposals. After a lunch of vegetarian ramen in the open kitchen, the group—Schendel, Racanelli, Corwon, who would market-test some of the ideas presented, and the project leader, Claire Cahan—moved to the meeting room. They sat at a round table while Gang stood, for three hours, presenting preliminary ideas and parrying questions. She began with relatively simple fixes for the building's poor flow and discontinuities. Move the entrance, now hard to find, to where the café is currently situated, and move the café to the waterside. Realign the escalators that take visitors up to exhibits so there would be less confusion. Embed a shallow "no-depth" river in the floor as a way-finder, as Gang's architectural heroine, Lina Bo Bardi, had once done in a community center in Brazil.

"Are you depicting it as covered with acrylic, or as open water?" Racanelli asked.

"Open water," Gang replied.

Racanelli laughed. Kids would splash in the river. His operations guys would hate it. The disabled might face egress problems because of it: "If you have to run from a fire, you can't be dodging a stream." The water would have to be covered somehow.

Gang also proposed connecting the aquarium's two piers with an acrylic underwater tube in the Chesapeake Bay, for visitors to walk through. Currently, only a bridge connects the piers.

"I don't know how to price it or put a number on it," she said.

"A lot of zeros," Racanelli quipped. The idea was brilliant, he said, but the execution might be not just expensive but challenging. Also, because pollution has made the Chesapeake murky, "I'm not sure what you would see." Gang gently countered, "It makes the whole thing connect in an exciting way, an interesting way. You're going on an adventure."

"I'm not ruling out the tube," Racanelli said.

He reacted with enthusiasm to other suggestions. Gang wanted to perch a wetland in the slip between Piers 3 and 4. It would more closely unite the piers and help to re-green the polluted harbor. Racanelli called it "a fantastic public exhibit anybody gets to see from our shore." And he liked the idea for a barnacle-shaped addition—a party space with commanding views of the harbor—atop Chermayeff's original building.

"This building is so determined in its

angles and triangles," Gang said. "It needs something—"

"—that breaks it," Racanelli said, finishing her thought.

"The building is so robust it can take it," Gang said.

"Debrutalizing the brutalism," Racanelli said.

Soon, Gang came to the question of Pier 4, and, as she phrased it, "What to do with that building if there are no dolphins there." Her initial idea was to make it an educational center, with labs and classrooms, and a place to reveal more of the aquarium's hidden work. Her team had measured the National Aquarium's floor space and discovered, even to Racanelli's surprise, that nearly two-thirds was devoted to back-of-the-house operations like breeding animals and growing coral. Why not make more of those activities public? Show the fish kitchen, where food gets prepared, or the lab where water quality is tested.

But none of Gang's ideas for Pier 4 could come to fruition as long as the dolphins remained there. She presented two possible models for a sanctuary: a remote location, which would keep the dolphins isolated from human contact; or a setting closer to an urban center, which might allow for more public education. She even offered a design for a hurricane shelter, into which the dolphins could be trained to move in the event of a storm.

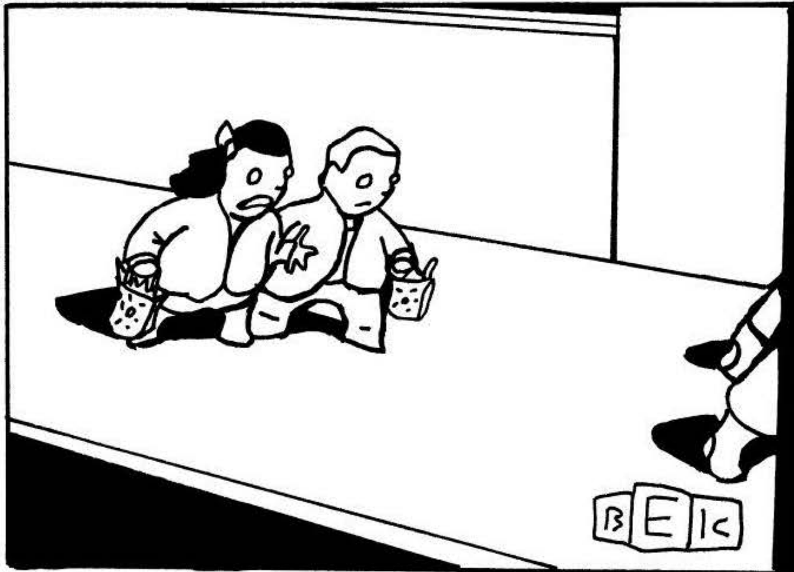
The group briefly discussed a step beyond a sanctuary: one day releasing the dolphins into the ocean. Racanelli believes that, if done very gradually, it might work for some of the aquarium's dolphins, perhaps by intermixing them with wild dolphins, so that the captive ones could learn survival behaviors. But he considers release a "real, real long shot," and at the March meeting his primary concern was whether the dolphins could make even the transition to a sanctuary unharmed. Untrained dolphins captured from the wild were once called "naïve" within the marine-mammal trade. Now that adjective is more often used for those bred or raised in captivity. His dolphins, he told the group, are like "city kids. They're not just city kids. They're city kids who live in an oxygen tent—they're the boy in the bubble. We're trying to get the boy out of the bubble, into the open air."

Two years ago, the Art Institute of Chicago mounted an exhibition of Studio Gang's work, a rare honor for a living architect. The exhibit included a tableful of her tower designs—models made from foam, wood, cardboard, plastic, and paper, all bunched together like spectators at a parade. Here stood a building, meant for Vancouver, with the shape and the texture of a tree trunk. Over there, a grouping of tubes for Lexington, Kentucky. For Hyderabad, India, a cube surrounding a courtyard; for Shanghai, a series of linked hexagons. In front, a glass office building for a site next to the High Line, in New York, the model glowing like a giant crystal. Each was an evolution of Gang's thinking about how to build densely, efficiently, and evocatively. But, of the designs displayed, only Aqua had been built, and most of the others were languishing.

Leaving the Art Institute one day, walking quickly, as she always does, Gang sounded almost wistful: "Sometimes I feel like I'm moving at a snail's pace, but then I look up at that"—she turned around and gestured at Aqua—"and say, 'I built an eighty-two-story building.'" When she hears people say that architects peak late, she is glad. She wants to keep building. To secure her legacy, she will have to. Blair Kamin, the architecture critic, says, "Aqua is not a perfect building, which is important to recognize, because Jeanne is young. I hope she will have other chances: that is where we will see if she can realize her enormous potential."

Tishman Speyer has asked her to build a tower in San Francisco, albeit much smaller than Aqua. And James Loewenberg, the developer of Aqua, who took a chance on a young Gang after meeting her at a Harvard alumni dinner, is in the process of obtaining financing for another tower by her. It would rise near Aqua. When Loewenberg first asked Gang for a design, two years ago, she was in Paris; she locked herself in her hotel room to sketch and then to model, using paper and tape from the front desk. Her design nestles together three buildings, which softly zigzag in and out as they rise. The middle building will straddle a road.

The design has been evolving ever since, in response to financial constraints and technical challenges: how to provide enough support for such a large structure without erasing the shape, for instance, or whether that support should come primarily from concrete or from steel, so that the two trades aren't competing to lead during construction. After building Aqua together, she and Loewenberg, who is eighty and blunt, have an easy rapport. At one point, he warned Gang that he was going to talk her out of the trapezoidal windows she envisioned for her structure,



"How did I become someone who has a screaming fit about a stupid gift bag filled with little plastic things?"

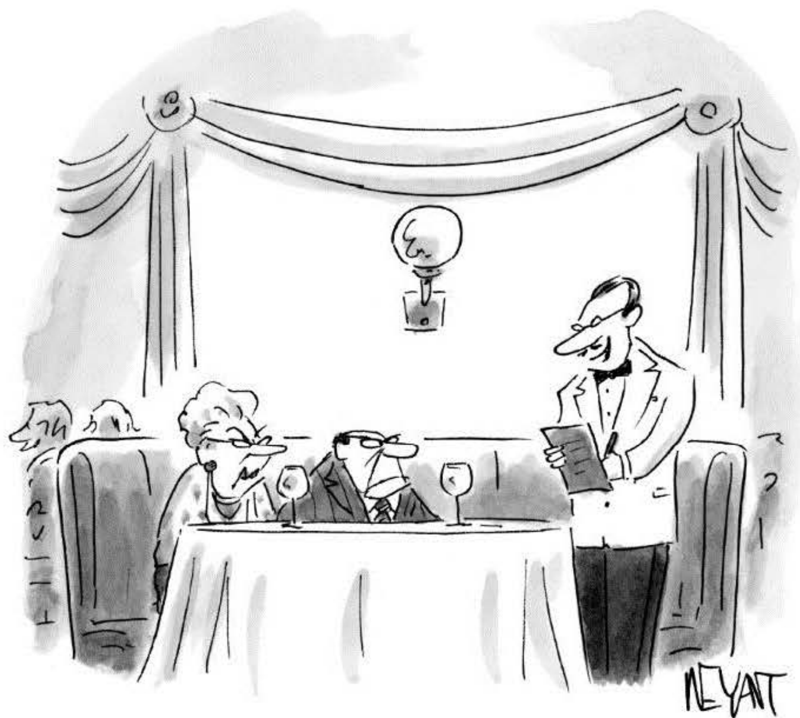
because they would be too expensive to replace. Gang laughed him off: "He doesn't really know what he's talking about, and neither do I, but I know I want to make something tapering. We'll test out what it looks like, and we'll have to prove it."

Advances in computer technology have made it possible for a practice as small as Studio Gang Architects to do tall buildings, which once would have required teams of draftsmen. Gang loves the process of building skyscrapers: how to make the elevators work in a building shared by renters, owners, and hotel guests, for example—she compares the transport system to a "vertical street"—or how to use design to lower energy consumption. And she relishes the efficiency with which decisions have to be made. There is no board to please, no community to consult. "It's rapid-fire," she says. "You make decisions and move on. Jim doesn't care what iterations you went through. He just wants to know what you want to do and why and does it work."

For a brief time, it appeared as if the new tower might approach "supertall" status, a designation granted by the Council on Tall Buildings and Urban Habitats when a building reaches nine hundred and eighty-four feet. (The current version of the tower is shorter.) "I've been noticing that in our office, whenever we talk about height, the guys get really excited about it," Gang joked one day, then conceded, "I guess I have the ego thing, too. It's just wanting to go further and beyond what we did with Aqua. I'd be breaking another boundary."

For a female architect?

"No!" Gang laughed. "Just for myself."



"Would you like to hear tonight's specials, or have you already closed yourselves to new experiences?"

In building towers, Gang is creating habitats for humans who choose to wall themselves in. The National Aquarium presents the inverse challenge: how to create a new habitat for creatures that were not meant for captivity but have nonetheless spent their lives in it. In contemplating the future of the dolphins, Gang knew she was up against the limits of her, or anyone's, knowledge. She suggested to Racanelli that he convene a summit of experts—among them, veterinarians, marine biologists, animal psychologists, and structural engineers—to discuss the risks and the complexities of a sanctuary. The meeting is scheduled for late May. Only if the resulting science concludes that his dolphins would thrive will Racanelli attempt a sanctuary. He would still need to find a way to pay for it. And he and his board would need to be sure that the loss of the dolphins and the visitors they draw would not compromise the aquarium's financial health.

Racanelli's board will likely decide by the end of summer which pieces of Gang's blueprint to adopt. If the dolphins are to be moved, Racanelli and Gang want to preserve a link to them, perhaps by video feed, so that Baltimore will not feel that it is losing something. Even more, they want to use the challenges of returning the dolphins to an ocean setting to teach the public about the lives of, and threats to, their wild cousins. Of the aquarium's eight dolphins, Nani is the only one to have been born in the wild. "The world that Nani left and the world she'd be returning to are much changed, and unfortunately not at all for the better," Racanelli says. Seawater has been poisoned by compounds like fire retardants and mercury. Along the Eastern Seaboard, more than a thousand dolphins are known to have died in the past year from the morbillivirus, a measles-like infection. "There has to be a way to inspire people to care for wild whales and dolphins," he says.

Gang believes that the design of institutions such as museums or aquariums not only reflects human culture but can also shape it. No less than dolphins, we are capable of being trained, and architecture is one means of doing so. One day, perhaps, visitors to what was the Marine Mammal Pavilion will sit in its bleachers, or a remnant of them, and watch live footage, on a huge screen, of the Baltimore dolphins in their ocean sanctuary. Perhaps some kind of reef will be implanted in the sanctuary, to attract fish on which the dolphins can feed. As the animals slowly revert to their natural behaviors, the people watching remotely will learn both what those behaviors are and what kind of environment will best foster them.

"You could tell the whole story of the ocean, and the threats to it, through the dolphins," Gang says. "It's much easier to do that if they are in a sanctuary, rather than performing." ♦