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WHO WAS BUCKMINSTER



Buckminster Fuller and the fruit of his imagination meld into one on the cover of *Time* magazine, January 10, 1964.

Inventor? Architect? Engineer? Philosopher? Dreamer? Genius? All or none of the above?

by Amy C. Edmondson

For the past sixty years people have struggled to categorize Buckminster Fuller. A college dropout, recipient of twenty-eight U.S. patents and forty-seven honorary degrees, author of more than two dozen books, and lecturer at more than five hundred colleges and universities, Fuller was always highly visible. But he defied classification.

The inventor of the geodesic dome—a structure light enough to be lifted by a helicopter yet strong enough to withstand hurricanes—achieved his eventual acclaim by never breaking a bargain he made with himself in 1927 as he teetered at the edge of suicide. A series of business failures, compounded with lingering grief over the death of his daughter five years earlier, had made Fuller increasingly despondent. Then he was fired from his job as president of a construction company he had founded with his father-in-law, and a second daughter was born. Overwhelmed by a sense of failure, he felt he must get himself out of the way, ensuring that relatives would take care of his wife and their baby.

He went to Lake Michigan, intending to swim out to his death. Then he was struck by what he called a vision, in which he saw that he didn't have the right to do away with himself. "You do not belong to you, you belong to the universe," he was later to explain; for all his mistakes, he was the custodian of a unique package of experiences that just might have some utility for mankind. He would trust the "anticipatory intellectual wisdom which we may call God" and allow himself to live, and he would never forget that he was a "throwaway."

Thus began the fifty-six-year experiment of "guinea pig B"—for Bucky—in which "an average healthy human being" resolved to become a problem solver "on behalf of all humanity." One can only imagine the reactions of family and friends when the thirty-two-year-old Fuller announced this. He further determined to dispense forever

with the idea of "earning a living," which to him meant advantaging oneself at the expense of others; if he concentrated on doing what needed to be done, funding would take care of itself. He decided to devote himself, broadly, to the technology of "living-ry," as opposed to weaponry.

Fuller moved his wife, Anne, and infant daughter, Allegra, to a one-room apartment in a Chicago slum, withdrew completely from all friends and social contact, and vowed not to speak again until he really knew what he thought. And then he began to think. His virtual silence lasted for almost two years and was the beginning of what he one day called "a blind date with principle." Listening to Fuller's later lectures, you might wrongly conclude that this was when his intellectual life began. In fact, his first thirty-two years were clearly formative and far from uneventful.

Richard Buckminster Fuller was born on July 12, 1895, in Milton, Massachusetts. His father was a successful tea and leather importer; five previous generations of Fullers had been prominent colonial clergymen and lawyers, and all had graduated from Harvard. Extremely poor vision was the first sign that young Bucky didn't quite fit in; he was born cross-eyed and blind to all but blurred patterns of light and dark. (He later attributed his tendency to think in terms of "big patterns" to this early handicap.) He recalled his older sister Leslie describing the strange sights she saw, to which he responded with even more outlandish visions, earning an early reputation as a comedian. His astonishment in finding that Leslie had been telling the truth—when he received his first eyeglasses at the age of four—was profound and enduring. Nature was more intricate and fantastic than he had imagined.

He spent his childhood summers on Bear Island, off the coast of Maine, in discovery and self-education. When he was eight, he produced his first invention—also his first attempt to apply

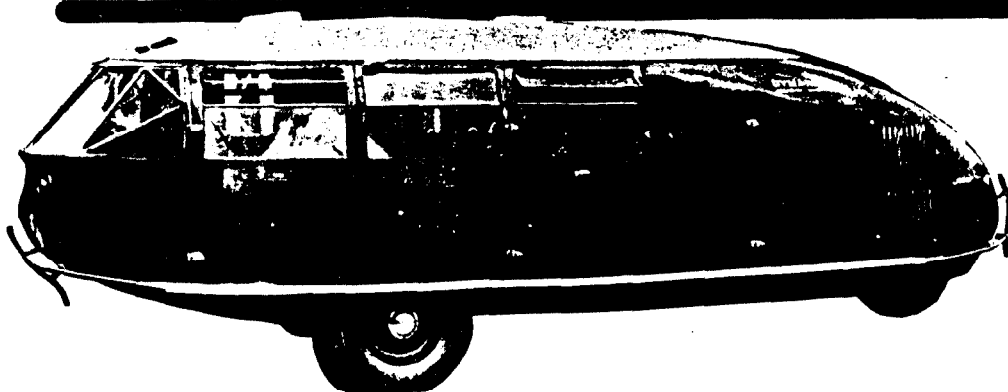
one of nature's lessons in a new way. To expedite the arduous four-mile row to pick up mail and supplies from the mainland, he designed a small jet-propulsion unit modeled after the behavior of jellyfish. Operated by pushing and pulling on a pole, his "mechanical jellyfish" opened and closed like an inverted umbrella, propelling the rowboat speedily through the sea and enabling its skipper to face forward.

Fuller attended Milton Academy from 1904 until 1913; he was funny and popular and a successful student. Determination must have overcome physical obstacles, for the five-foot-six cross-eyed senior was quarterback on the football team. Entering Harvard in 1913, he soon found things going less well. Having excelled in math and science at Milton, he impetuously signed up for subjects he didn't know about, such as Greek, Latin, and government; then, while trying out for football, he broke his knee. Many of his Milton friends joined socially prestigious clubs and no longer saw the amiable oddball as an appropriate acquaintance. Depressed and bored, he cut his midyear exams and ran off to New York with a year's allowance in hand, only to wind up treating the entire chorus of a Broadway musical comedy to a champagne dinner. Harvard dismissed the reckless truant, and his family packed him off in disgrace to a cotton mill in Sherbrooke, Quebec, where he worked as an apprentice machine installer.

As a punishment the plan backfired. Fuller thrived in the new environment, proving himself a natural mechanic. Reports of his performance were so favorable that Harvard gave him a second chance, which ended as quickly as the first. Expelled again, for "general irresponsibility," Fuller was sent to an Armour meat-packing plant in New York City, where he was put on a 3:00 A.M. to 3:00 P.M. shift. He again flourished.

When the United States entered World War I in 1917, Fuller joined the

The house and car were innovative and outlandish, but his real goal was to make shelter an affordable service industry.



The three-wheel, eleven-seat, streamlined Dymaxion car, in a 1934 incarnation.

Navy and found a calling. Life on the sea inspired creative, broad-scale thinking. Firsthand experience with new technologies, from refrigeration to radio communications to improved metal alloys, led the impressionable sailor to question Thomas Malthus's century-old proclamation of fundamental scarcity. Fuller perceived that technology was accomplishing more and more with ever less material and time, and he concluded that the trend pointed to ample life support for all humanity. Much of the new technology he was seeing was known and used only by the military; he suspected that its application to civilian society could have a profound effect. Fuller's "design science" philosophy and vision of an engineered, sustainable future were gradually taking shape.

Fuller witnessed several tragic drownings during World War I when Navy pilots were unable to free themselves after their planes landed upside down in the ocean. Sailors aboard nearby ships could only stand by helplessly. Fuller rigged up a boom-and-pulley mechanism that was able to reach out and flip an aircraft over in time to save the pilot's life. His invention was immediately adopted, and it prevented an unknown number of unnecessary deaths. It stands out as a rare instance in Fuller's life when application and results were immediate—and immeasurably satisfying.

His enthusiasm for new technology did not lead easily to an ability to make money with it, however. After the war he went to work for the architect

James Monroe Hewlett, the father of his bride, Anne. On the job he developed a method of mass-producing a fibrous lightweight concrete block invented by Hewlett, and the Stockade Building Company was born. Between 1922 and 1927 Fuller constructed 240 buildings; but his phenomenal energy did not make him a businessman, and his projects consistently lost money until the company's directors told him his services would no longer be needed. That was when he went to Lake Michigan to take his life.

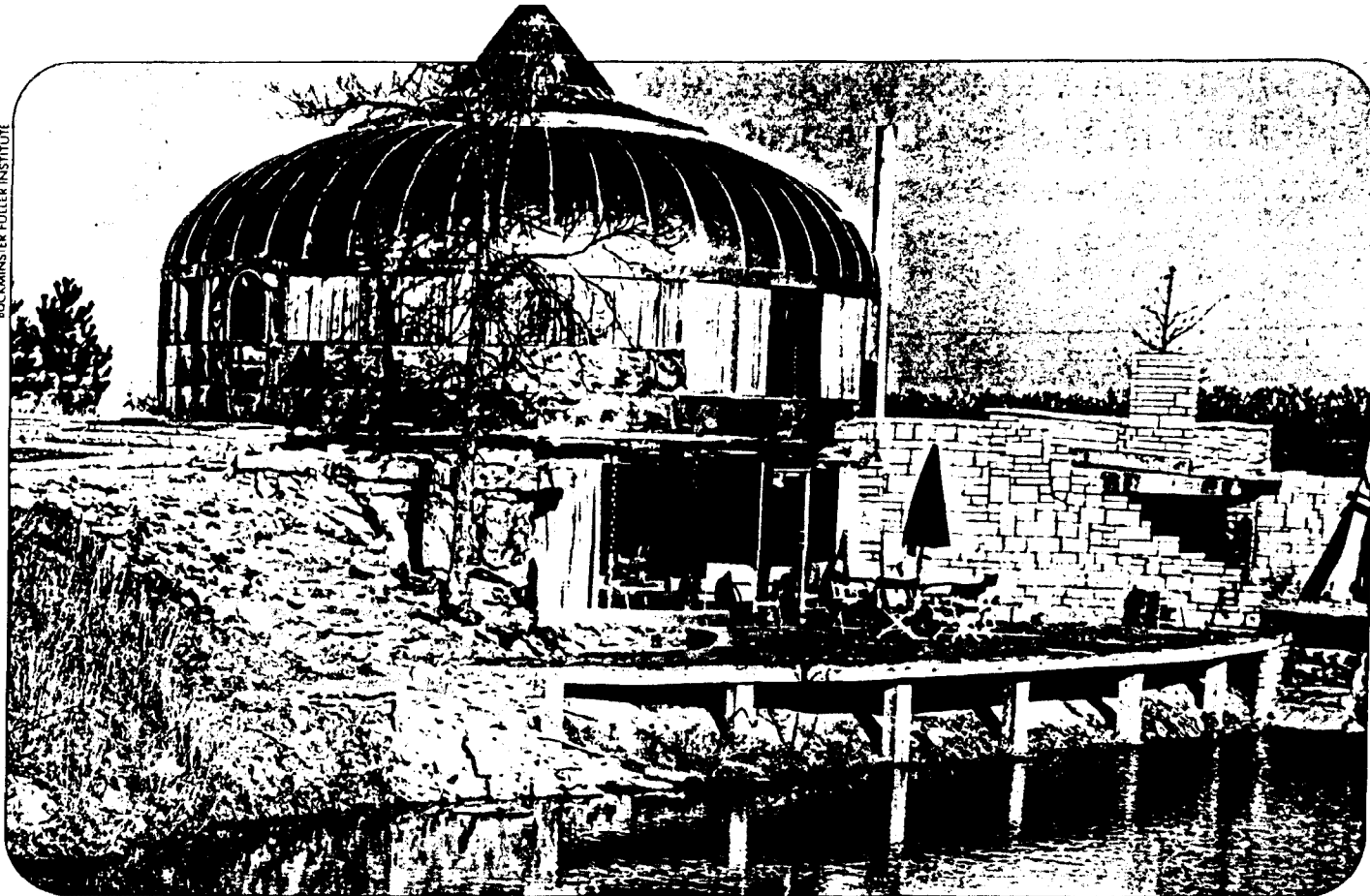
When Fuller emerged from his period of quietude in 1929, he set out to design better forms of housing. He was interested in housing partly out of guilt over his first daughter's death; he felt, not completely rationally, that a drafty house had promoted the pneumonia that killed her. Mainly he thought that "no one was attending to it." The building world, he had concluded, was grossly inefficient, expensive, and stuck several centuries behind contemporary technology. Profit was at odds with productivity, and the special interests of plumbers, electricians, and builders were guaranteed to sabotage any significant advances. He decided to design shelter systems for fifty years ahead, so as not to threaten anyone. His underlying assumption was that he would be most productive as an unfiliated thinker, unconstrained by practical and financial considerations.

It was the machine age, a time when anything seemed possible. Why not de-

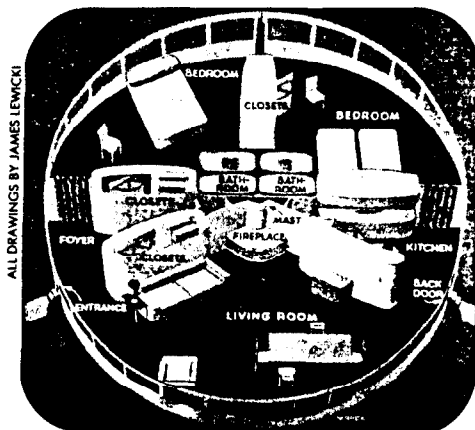
sign a house that could be mass-produced as quickly, efficiently, and inexpensively as an automobile? Fuller was drawn to the lightweight engineering of the emerging aircraft industry just as he was repelled by the massive bulk and slow construction of the typical American house. His first solution was a wildly untraditional tension structure, a shiny, hexagonal single-family dwelling suspended from a central mast. Rooms were arrayed radially around the mast, which contained heating and air-conditioning elements along with a self-vacuuming device and other fanciful gear to minimize drudgery. The Dymaxion house—the name was coined by a Marshall Field's public relations team and subsequently adopted by Fuller—was to be fully automated, solar-powered, deliverable by air, autonomous, and, of course, low-priced. Anticipating the development of new materials, Fuller predicted that the entire house could someday weigh three tons (a conventional one-family house might weigh a hundred and fifty tons) and cost fifteen hundred dollars, or twenty-five cents a pound, about the same price per pound as a 1929 Chevrolet.

The Dymaxion house created quite a stir in 1929. It was first unveiled at the Marshall Field's department store in Chicago, where a model was displayed along with a new line of modern furniture; then it went on tour around the country, providing an entertaining vision of the future to Depression audiences in other department stores, museums (including the new Harvard Society for Contemporary Arts), and hotel lobbies. Fuller accompanied it and lectured incessantly, spinning grand visions of a new world without poverty or need.

Fuller had designed a self-sufficient bathroom as an integral part of this "dwelling machine," and in 1936 Phelps Dodge gave him the chance to build a copper prototype. It included a sink, tub, and waterless packaging toilet ingeniously stamped out of four pieces of sheet metal. Fuller character-



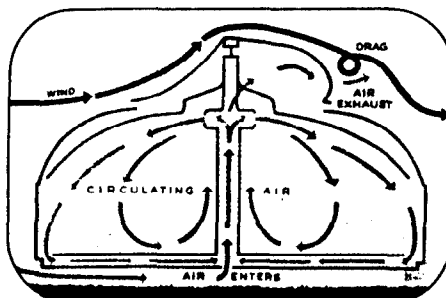
The Dymaxion house, with a second floor added below. Disassembled, the house fit into a tube sixteen feet by four and a half.



The house plan: four wedge-shaped rooms.

istically anticipated mass production of his bathroom using a plastic better than any then available. The Dymaxion bathroom also incorporated a Fuller invention called the fog gun, which would provide a ten-minute shower on only a quart of water and then collect and filter the water for recirculation.

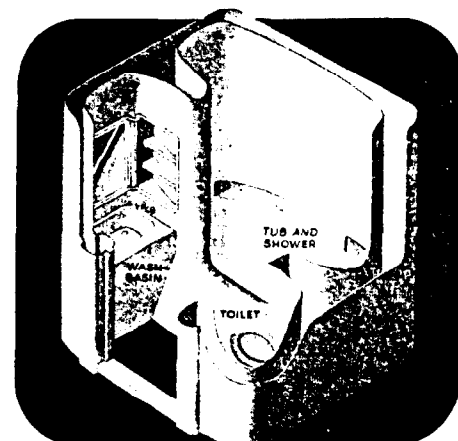
During the early 1930s Fuller turned his attention to transportation, and proposed an "omni-medium transport vehicle" that would fly, swim, and drive with equal ease. He also designed and built a real car, the Dymaxion car,



A ventilator at top rotated with the wind.

which brought him a great deal of attention and press coverage. It drove at 120 miles per hour, got 40 miles to the gallon, turned completely around in its own length, and carried eleven passengers.

The car's efficiency was almost entirely a result of deliberate aerodynamic design. In 1932 cars were still boxy and tall. Fuller reasoned that faster cars must be designed for smooth airflow because air resistance increases proportionally with speed. After careful experimentation with molded shapes, Fuller developed a streamlined teardrop hull with a perfectly smooth underside. He then teamed up with Stirling Burgess, a renowned aeronautical engineer and naval architect, hired twenty-seven mechanics and en-

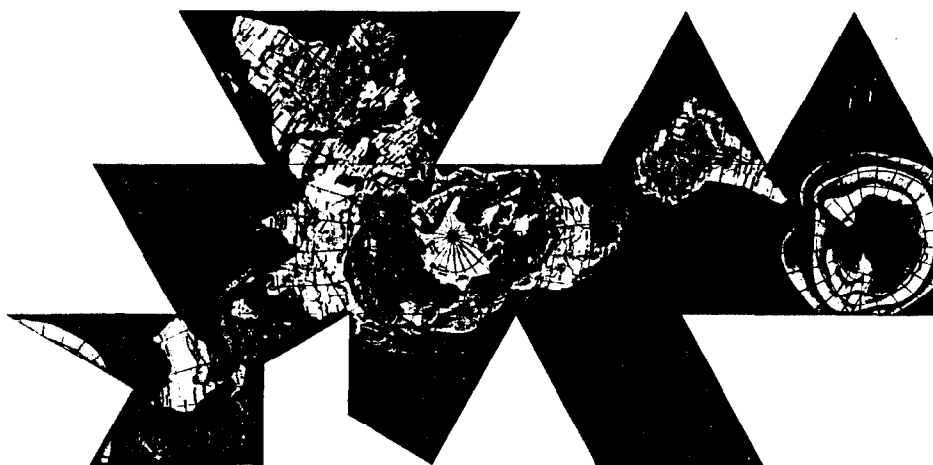


The stamped-metal Dymaxion bathroom.

gineers, and built his car in an abandoned factory in Bridgeport, Connecticut. Using a standard ninety-horsepower Ford V-8 engine, Fuller and Burgess introduced front-wheel drive, rear steering, rear engine mounting, one-eighth-inch-thick aircraft-glass windows, a chassis of chrome-molybdenum steel, wraparound bumpers, and an aluminum body.

The sleek, three-wheeled car was widely exhibited, most visibly at the 1933 Chicago world's fair, but a fatal accident in 1933 generated equally fatal publicity ("Three-Wheeled Car Kills Driver"), even though the other car

The highly efficient, nearly spherical icosahedron form Fuller applied so widely shows up repeatedly in nature.



Fuller redrew the map of the world by projecting it as an unfolded icosahedron.

involved was technically at fault. A later retraction of the original news story about the event did little to undo the damage.

As innovative and outlandish as the Dymaxion house and car were, they paled before Fuller's real objective. He envisioned shelter as a service industry—worldwide, functional, and affordable. Housing should in the future be delivered when and where it was needed, with maintenance standardized and dependable. High-quality shelter should be inexpensive for all, with mass production bringing economies of scale. The scope of this vision presented obvious practical problems. Throughout his career Fuller had little patience with interested backers out to make money from his ideas; he wanted no less than to create an industry that would remake the world.

He almost got his chance in 1944, when Beech Aircraft became interested in his house. Supported by the War Production Board and the U.S. Department of Labor—both concerned with giving workers a future in a war-dependent industry—Beech tooled up for production of a new Dymaxion house, in Wichita, Kansas. Production was scheduled to begin in early 1947 and reach an eventual volume of half a million houses selling for thirty-seven hundred dollars apiece. A 1946 prototype drew visitors from all over the

country; according to *Fortune* magazine, 93 percent of them wanted to buy one immediately. The thirty-six-foot-diameter circular structure was unexpectedly spacious and luxurious, with seven rooms and every possible convenience. Sixteen-foot cathedral ceilings and a wraparound Plexiglas window added to its expansive feeling. Made with the latest aircraft alloys, the house weighed exactly the three tons Fuller had predicted in 1929. All the component parts, including a large roof ventilator that revolved according to wind direction, fitted inside one small cylinder for shipping. *Fortune* called the house "so completely radical there is no basis for comparison with the traditional dwelling." Internal political struggles suffocated the project, but not before hundreds of unsolicited orders, complete with checks, arrived in Wichita.

Fuller developed the geodesic dome in the 1940s. More than any other achievement, this invention fulfilled his 1927 vow to "discover the principles operative in the universe and turn them over to my fellow man." Combining the inherent stability of triangles with the maximal volume-to-surface-area ratio of spheres, the geodesic dome is a straightforward application of geometric principles. A geodesic dome can span virtually unlimited distances with no interior supporting elements, using perhaps 3 percent of the material needed for a conventional

structure of comparable size. It is based on the icosahedron, the most spherical of all the regular polyhedra, with twenty equilateral triangular faces. This highly efficient, symmetrical form shows up repeatedly in nature, in the protein shells of certain viruses, in microscopic sea creatures called radiolaria, and even in the human cornea. One of Fuller's first uses of the icosahedron was for a relatively undistorted world map, made by representing the earth as such a shape and then unfolding it onto a flat surface. This "Dymaxion projection" won him in 1943 the first U.S. patent for a cartographic achievement.

The Air Force picked up on the geodesic dome's utility right away when planning the 4,500-mile DEW line across northern Canada. Fragile radar equipment was going to have to be enclosed in structures sturdy enough to withstand Arctic snow and winds, yet delicate enough to transmit radar signals. The problem seemed insurmountable until Fuller produced his radome in 1952. A team of engineers at the Massachusetts Institute of Technology predicted that the dome would collapse in an 18-mile-an-hour breeze; instead, it withstood 150-mile-an-hour winds in MIT's wind tunnel until its cement foundation pulled out of the ground. Next it was tried on top of Mount Washington. Engineers stood by with stopwatches, making bets on how many seconds or minutes the dome would last in the almost 200-mile-an-hour winds there. It remained intact until dismantled two years later.

In 1953 the Ford Motor Company challenged Fuller to cover its ninety-three-foot rotunda in Dearborn, Michigan. The dome would have to sit atop existing circular walls that could bear only eight tons, whereas a traditional dome that size would have weighed a hundred tons. With a deadline of only one month before Ford's fiftieth anniversary celebration, Fuller quickly designed and built a geodesic dome using nineteen thousand aluminum struts to make up 120 separate triangular space

frames. Spanning ninety-three feet, it weighed not too much more than one of Ford's cars. It later emerged that Ford executives were so confident of failure they had hired a wrecker to stand ready to clear away Fuller's debris the day before the festivities. And the wrecker was paid more than Fuller received for the completed dome.

Last-minute crisis projects emerged as Fuller's specialty. In 1956 he built in thirty days a 100-foot dome for the last-minute U.S. pavilion at a Kabul trade fair. That dome traveled to exhibitions around the world for the next

two years. A 200-foot version constructed in Moscow in 1959 so impressed Nikita Khrushchev that he publicly exhorted "Mr. J. Buckingham Fuller" to come train Russian engineers. In 1957 Fuller built a glittering concert auditorium, with panels fabricated by Kaiser Aluminum, in Honolulu. Henry Kaiser himself was scheduled to supervise construction. He arrived twenty-two hours after the dome's aluminum components had landed at the airport—to find not only a finished 145-foot concert hall but also the Hawaiian Symphony Orchestra playing to

a full house of 1,832. The 1927 "throw-away" now found himself internationally acclaimed as a genius, thriving on a frenetic schedule, accomplishing unprecedented structural feats in defiant succession.

The geodesic dome opened many doors, and Fuller's influence began to expand rapidly. He entered a new phase of his life, in which he was to make his greatest contribution, lecturing in universities all over the world. And his dome found new use as an educational tool.

EXPERIENCING BUCKY

Kirkwood Meadows, California, August 15, 1981: Buckminster Fuller, his gentle eyes grotesquely magnified behind his thick glasses, watches intently as I insert the final balsa-wood struts in a twenty-five-inch-diameter geodesic sphere that models his latest structural innovation. His large head, prickly with white hair, angles forward from the compact eighty-six-year-old frame—alert, anticipating. As Fuller's new engineering assistant I am on my first "business trip." Guided loosely during his brief office visits, I have gradually learned to decipher the code. His goal is always simplification: fewer components, greater efficiency.

We are in a remote ski resort for a late-summer conference of business people. Bucky is scheduled to lecture for thirty-six hours during the next six days, and I'm looking forward to the break of listening to him. Crouched by my balsa-wood model, I am thrilled and relieved by the confirmation of months of mathematics. It works. Now it's finished and we will celebrate, I think. Bucky inspects my model, nods, and looks up.

Suddenly the unexpected. He wants the hundred or so conference attendees to construct—led by me—a full-scale prototype of the dome. The glue on my model is not yet dry. I begin to suspect that his eighty-six years are catching up with him. "I know for a fact," the voice runs inside my head, "these people are here with felt-tip pens, not with band saws and drill presses." I feel sad that Bucky will have to find out the hard way.

He wants me to calculate the weight ("assume Douglas fir") of tomorrow's dome, figure out the stress-

es ("use good-quality wood, not too many knots"), then tell someone what materials we'll need. How am I going to tell him? I wonder, dreading the confrontation. New to the job, I hadn't yet seen Bucky Fuller in action. To Bucky Fuller, a captive audience of one hundred able-bodied Americans appearing right after the completion of his latest geodesic design was an invitation.

It turns out, of course, that he knows just what he's doing. He knows that a truck will start toward Reno immediately to buy lumber; he knows that eager carpenters

in the crowd will soon surface and offer their skills. I am the one learning—not the hard way at all, but rapidly, adrenaline flowing, excitement building. I soon find myself thinking: It's as if people have been waiting their whole lives to put down their felt-tip pens and stand outside for hours holding two-by-fours in place until their backs ache, listening to urgent instructions flying back and forth.

Twenty-four hours and eight hundred dollars later, a twenty-five-foot-diameter geodesic dome stands complete, exhibiting a strength beyond the relative frailty of its parts (that's synergy). The fragile-looking structure becomes a model for photographing, a scaffold for climbers (can it really support me?), the makeshift chapel for a wedding, and, finally, an education.

How many campuses were electrified this way? How many groups have shared this elation? I begin to understand that this sense of urgency, this skillful channeling of human energy, is the secret fuel behind Fuller's eighty-seven years of perpetual motion.

—A.C.E.



Students test a dome they constructed in North Carolina, 1949.

It is wrong to label Fuller as an inventor; his inventions are best viewed as models built to demonstrate his thinking.

Beginning in the early 1960s, universities around the world sponsored dome projects, and Fuller seemed to be everywhere at once. His enthusiasm seemed irresistible, as he announced occasional new discoveries and achieved structural breakthroughs together with students. This happened at the University of Ghana, where nature provided automatic air conditioning for a seventy-five-foot dome. By the opening of certain panels in the dome, its interior could be made 30 degrees cooler than the surrounding 120-degree desert. It was quickly nicknamed the cooling machine.

The dome and its refinements took second billing now to the inventor's marathon "thinking out loud" sessions. Fuller would talk well into the night, and very few students would leave even after five or six hours. These sessions grew into his World Game Workshops, in which students diligently compiled and combined inventories of global resources and problems, usually concluding that with ecology, renewable resources, and solar and wind energy the world could work for everyone. Fuller was dealing with students at a formative and often cynical stage in their lives and brought them the message that they could be problem solvers "in support of an eternally regenerative universe."

He spoke only where and when he was asked, never allowing any promotion or even logical rearrangement of his schedule. As a result, his itinerary kept him zigzagging across the country and around the world. He had waited sixty years for recognition, and he wasn't about to slow down. Fame seemed to give Fuller energy; at an age when most people retire, he was just gearing up for another round. At sixty-eight, in 1964, he was featured on the cover of *Time*.

For most of his life he had been known simply as a crackpot," the *Time* article reported, but "today, at 68, he . . . evokes an impressive chorus of enthusiasm from many of those best qualified to judge his work. Architect

Nathaniel Owings of Skidmore Owings & Merrill pronounces Fuller 'the most creative man in our field.' . . . Italy's famed Architect Gio Ponti feels that Fuller is 'not only a romantic pioneer who sees 50 years ahead, but a genius who has already realized his dreams as to what humanity needs and how the world must look in the future.' " The article expressed awe at Fuller's versatility—and puzzlement at his refusal to capitalize on his genius: "Unquestionably, Bucky could have made much more [money] by incorporating himself or going into organized production. But Bucky is not interested. Says he: 'Whatever I do, once done, I leave it alone. Society comes along in due course and needs what I have done.' "

Society has responded more slowly than Fuller anticipated, leaving us not with a world transformed by his inventions but with the originality of his life and thought. So despite his geodesic dome, it is wrong to categorize Buckminster Fuller as an inventor; his inventions are best viewed as models built to demonstrate aspects of his thinking. To Fuller the glittering Ford dome was less an architectural monument than "pure principle" made visible. If he is to be assigned a category, then he was a teacher, one of the most important of our age.

The last major structure Fuller himself designed was the U.S. pavilion at the 1967 Montreal world's fair. It was the largest dome in the world, spanning 250 feet and reaching twenty stories high with no interior supporting elements. Moreover, it was exquisitely beautiful. Bucky and Anne Fuller celebrated their fiftieth wedding anniversary in it at the opening of the fair.

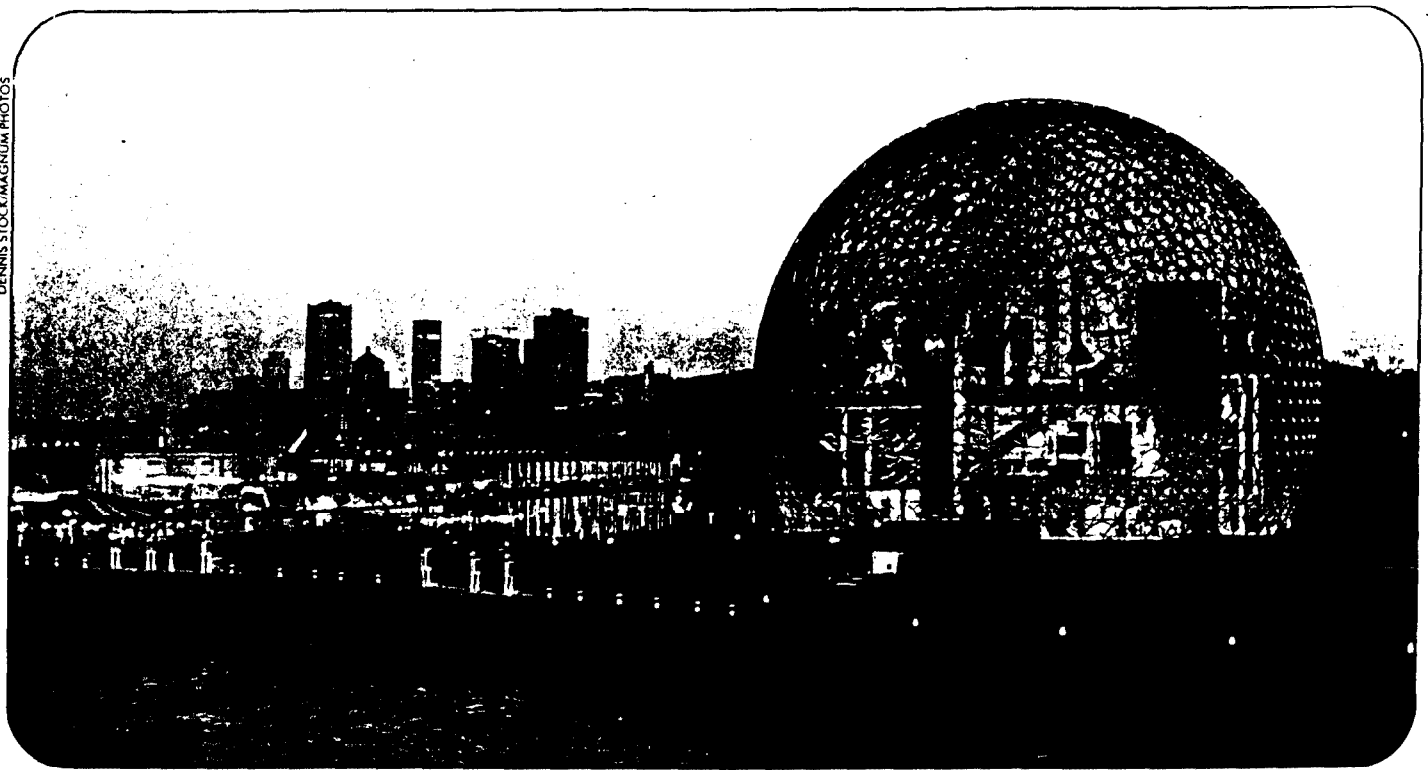
Later years left little time for focusing on individual structures. Fuller was drawn ever more anxiously to the "big picture"—the "final exam" facing all humanity. The exam question: "Whether it is to be everybody or nobody." Would people keep developing "ever more efficient ways to blow each other

up" or learn to act responsibly and cooperatively in behalf of future generations? Fuller devoted himself full time to talking, writing, and teaching. In 1972 he was appointed world fellow in residence at the University City Science Center in Philadelphia by a consortium of four nearby universities. His sparse office contained seven hard-working assistants, responding to voluminous mail, answering phones, typing and retyping manuscripts for the dozen books he wrote, and one engineer, developing and refining the trigonometry behind the geodesic dome.

The best description of his life's work comes from Fuller himself: "I did not set out to invent a geodesic dome; I set out to discover the principles operative in the Universe and turn them over to my fellow men. For all I knew this could have led to a pair of flying slippers." As he saw it, the geodesic dome was simply an application of universal principles, and so was all invention. The key to humanity's success aboard Spaceship Earth—a name he coined—lay in applying those principles in innovative ways. Fuller's own relentless search for nature's principles is chronicled in his magnum opus, *Synergetics: The Geometry of Thinking*.

Synergetic geometry may well be his greatest intellectual contribution. The work is not only painstaking, analytical, and precise but also intuitive and oddly mystical; one cannot say whether synergetics is philosophical geometry or geometrical philosophy. Either way, it represents an ambitious undertaking: one man's attempt to discover principles that underlie our experience—that is, to understand the universe.

The title evolves from Fuller's concern with whole systems. The predominant characteristic of reality seemed to be that the behavior of any system's parts could never reveal the unexpected dividend provided by synergy. His search for "nature's own coordinate system" would therefore start with whole systems and move on to their parts. The resulting body of work grew



One of Fuller's last large domes, the United States Pavilion at the 1967 Montreal world's fair, glitters in the twilight.

out of such experimental procedures as the close packing of spheres to find "eternal design interrelationship principles."

Closest-packed spheres, like the simplest possible structure the tetrahedron, a four-faced pyramid, are characterized by sixty-degree angles and triangulation. The cube, in contrast, is unstable, and Fuller found its cousin the x - y - z coordinate system awkward and unreliable. He spilled out his disdain for the right angles of architects and mathematicians in two volumes—fourteen hundred pages of observations and facts presented in a hurried, idiosyncratic style.

Mathematicians have for the most part not felt it necessary to comment on Fuller's work in this area. But some scholars are intrigued. The crystallographer Arthur Loeb, of Harvard, writes in his preface to *Synergetics*: "In rejecting the predigested, Fuller has had to discover the world all by himself. It is not surprising, in fact rather reassuring, that the obvious should emerge alongside the novel, the obscure together with the useful. Posterity will have to draw the line between the mystical and the scientific, a line that will certainly have to be redrawn from time to time."

Buckminster Fuller managed to construct in his eighty-seven years a looming and resilient authority. Somehow he was able to maintain through it all the ingenuousness of a child and a complete openness to new thoughts, situations, and people. His "design science" approach to global problems can seem simplistic, but then optimism itself may seem naive today. He demonstrated by tireless example how one individual can have a positive effect on human affairs, and he lived an almost impossibly full life with an unfaltering single mission: to demonstrate the potential of responsible technological design for making the world a place that works for everyone.

His geodesic structures cover more ground than the buildings of any architect in history, but his contribution cannot be judged on the basis of them or his houses or his car. Decades have gone by since these fanciful designs were tossed out by his fertile mind, and in their wake architects, students, and laymen from all professions have learned to see the world differently. Norman Cousins wrote that "few people, after meeting Bucky, did not forever feel a sublime wonder when looking at a starlit sky. If we read Bucky Fuller solely for information we will obtain information, but we will be cheating

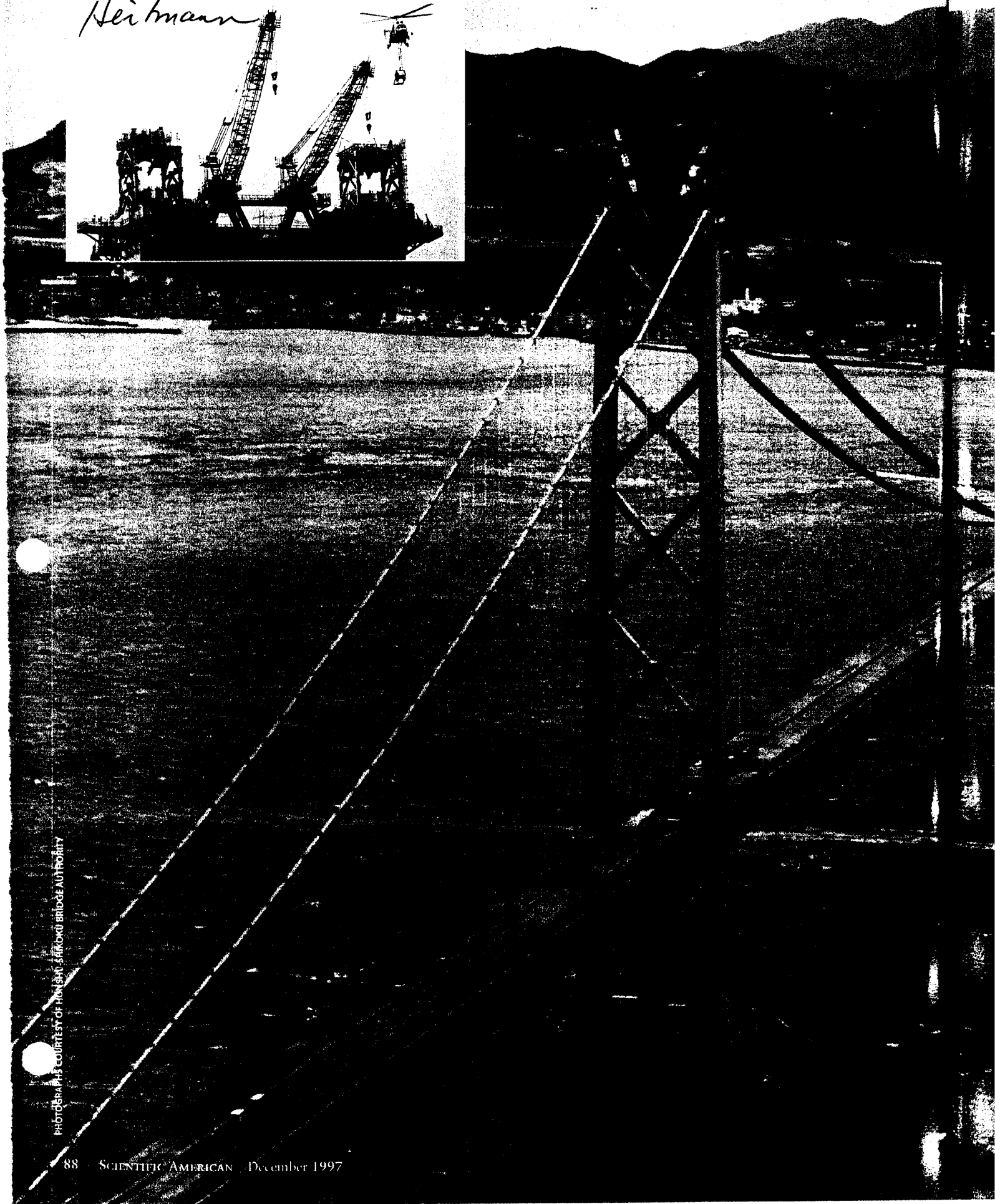
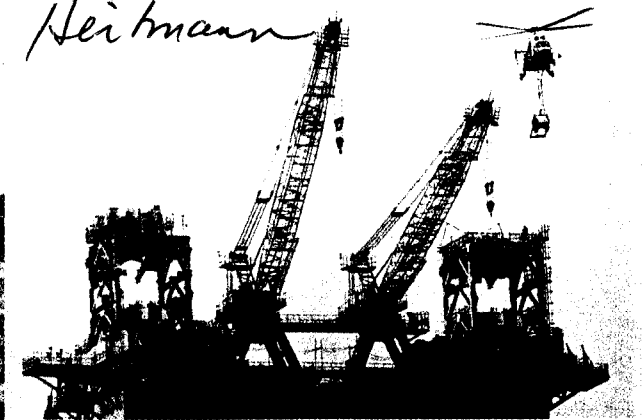
ourselves. We should read him for the increased respect he gives us for human potential, and for the lesson that there are no boundaries to the human mind, which he celebrates above all else."

The title of one of his books, *I Seem to Be a Verb*, provides the best summation. Fuller in a unique way embodied our national trait of questioning the status quo. *Time* called him "a throwback to the classic American individualist, a mold which produced Thomas Edison and Thoreau." It is easy to criticize Fuller for his lack of tangible achievement, but in so doing, we miss his essential message about the ability of everybody to do something toward creating a better world.

His projects and lectures continued at the same breathless pace right up until July 1, 1983, when his heart suddenly stopped, at the deathbed of his wife of sixty-six years. Without regaining consciousness, Anne followed him thirty-six hours later, his silent but evidently vital life partner. ■

Amy C. Edmondson was Fuller's engineering assistant during the last three years of his life and is author of *A Fuller Explanation: The Synergetic Geometry of Buckminster Fuller* (Birkhäuser Boston, 1987).

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