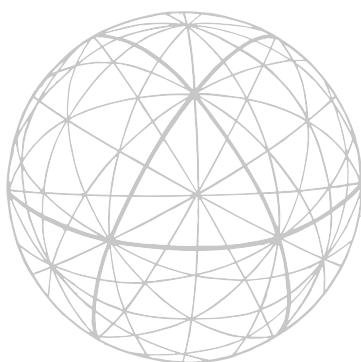


INVENTOR OF THE FUTURE

THE VISIONARY LIFE OF
BUCKMINSTER FULLER



ALEC NEVALA-LEE



DEY ST.

An Imprint of WILLIAM MORROW

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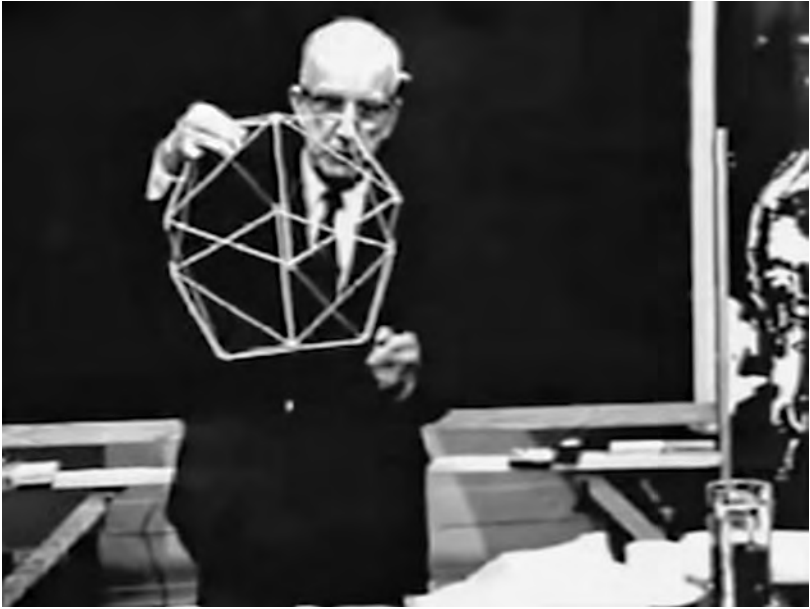
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Fuller in the television commercial that introduced the Apple slogan "Think Different."



Fuller and his father in the summer of 1897.

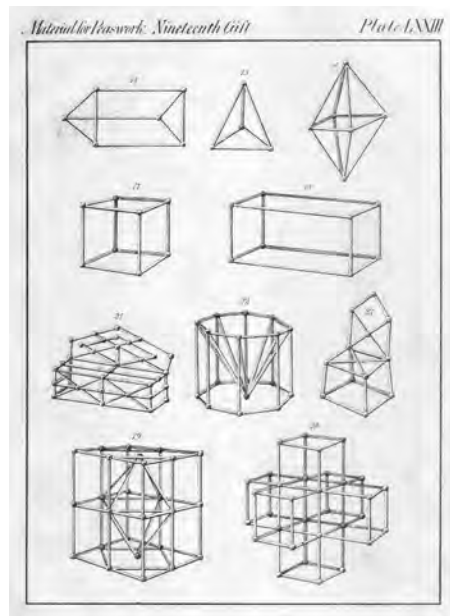
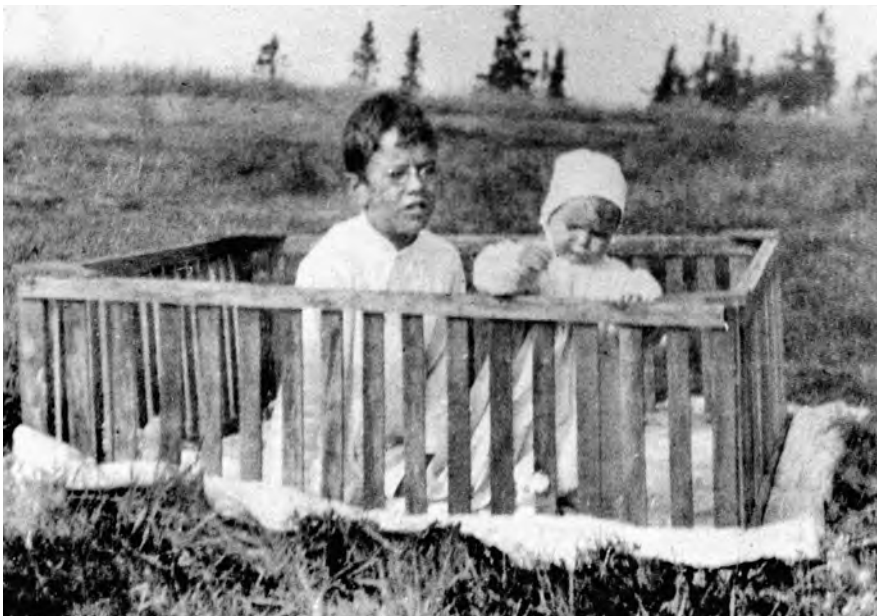
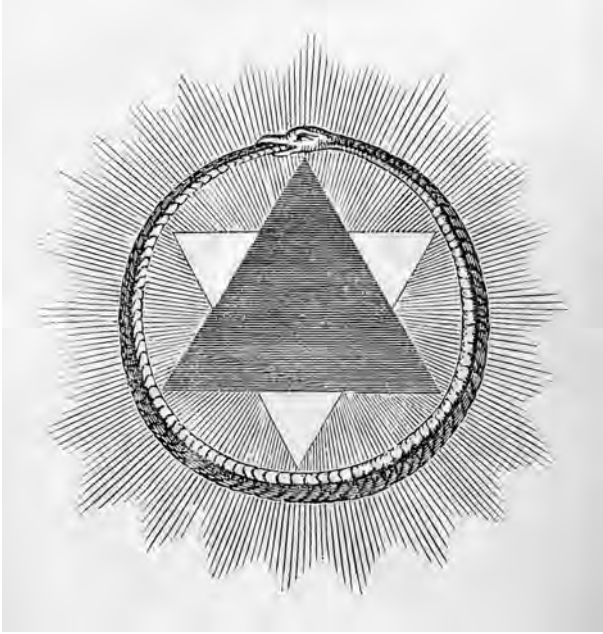


Diagram of "peas work" constructions from *The Paradise of Childhood*, a manual for Froebel educators published in 1869. The tetrahedron and octahedron appear in the top row.



Fuller with his sister Rosamond in the playpen that he built for her at Bear Island (1907).



The allegorical frontispiece to Margaret Fuller's *Woman in the Nineteenth Century* (1845).



Daguerreotype of Margaret Fuller by photographer John Plumbe (1846).



Fuller (second from left) in Sherbrooke, Quebec (1914).



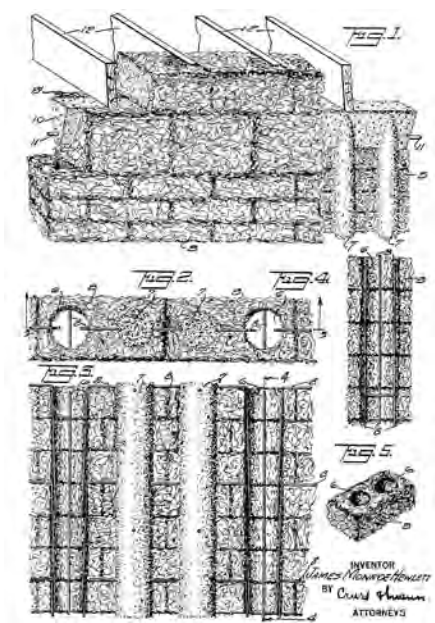
Photo studio portrait of Anne, Fuller, and Anx (1916).



Fuller aboard the USS *Inca*.



Alexandra Fuller.



Patent illustration of the Stockade Building System by James Hewlett.



Fuller's One Ocean World Town Plan, from the second printing of *4D Time Lock* (1928).



Fuller, Allegra, and Anne at the shore of Lake Michigan in Chicago on April 8, 1928.






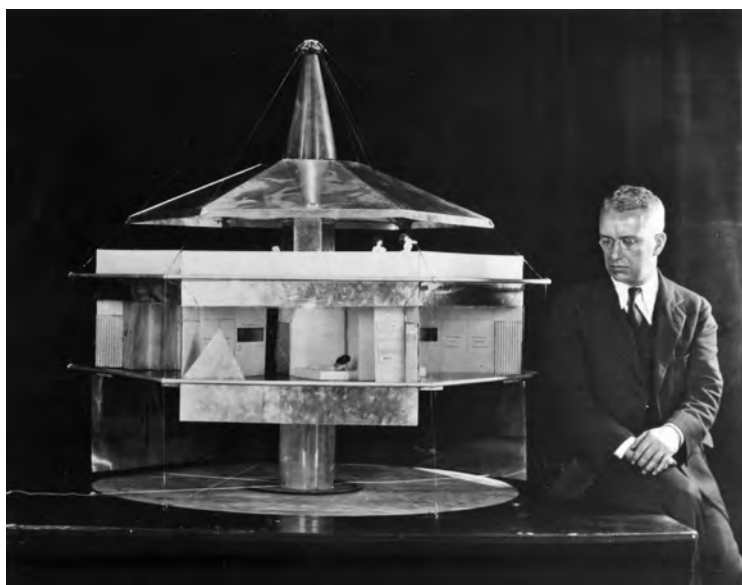
	→ Section at right angles to direction.	Resistance. 0.085
	→ Sphere.	0.0135
	→ Hemisphere—concave.	0.109
	→ Hemisphere—convex (open behind).	0.033
	→ Ovoid body: the greater mass in front.	0.002

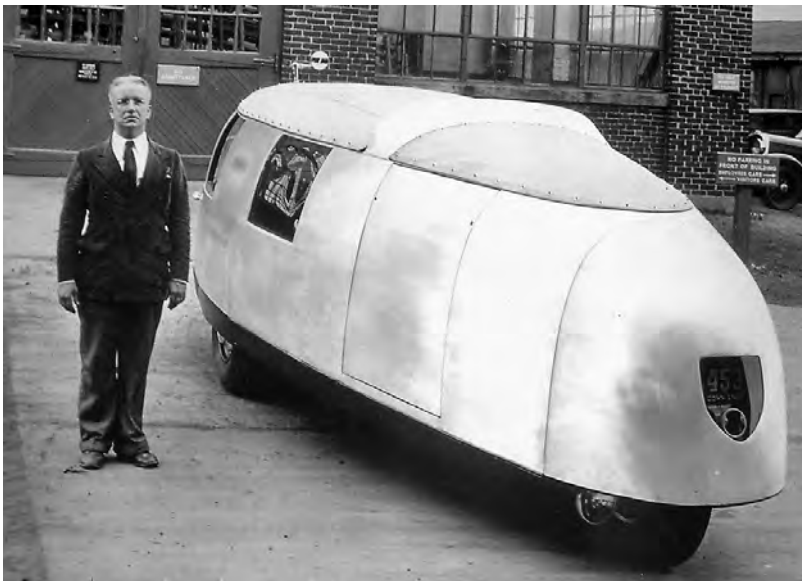
Table of wind resistance of various shapes, including "Ovoid body: the greater mass in front," from the English translation of Le Corbusier's *Towards a New Architecture* (1927).



Fuller with the third model of the Dymaxion House. A small figure of a nude woman on the inside illustrates the structure's climate control.



Dymaxion Car under construction in Bridgeport, Connecticut (1933).
Fuller is kneeling to examine the engine compartment at the far left.



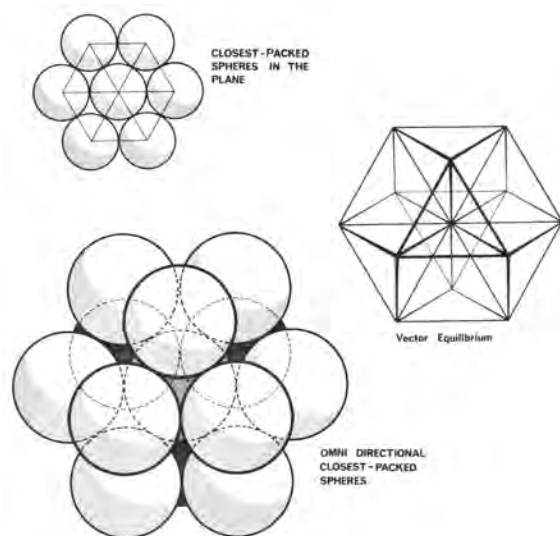
Fuller with Dymaxion Car #1 (1933).



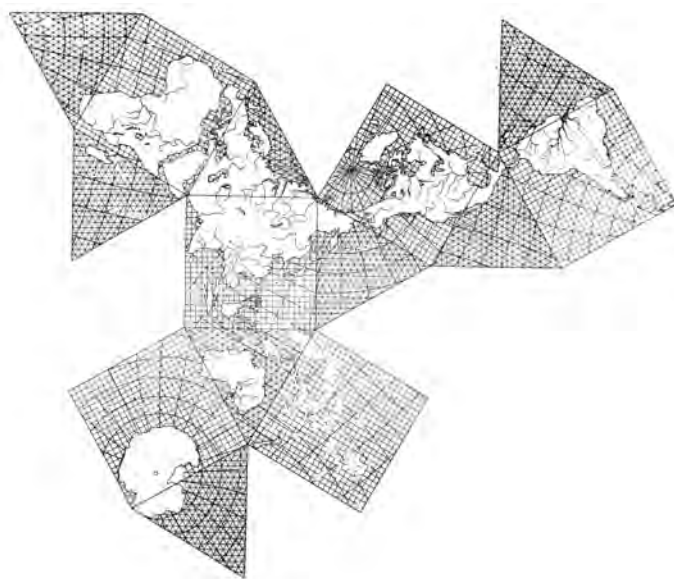
Interior of the Phelps Dodge bathroom (c. 1937)



Display model of the Dymaxion Deployment Unit in Kansas City, Missouri (May 1941).
Photograph by Marion Post for the US Office of War Information.



The construction of the cuboctahedron (or vector equilibrium) from the closest packing of spheres.



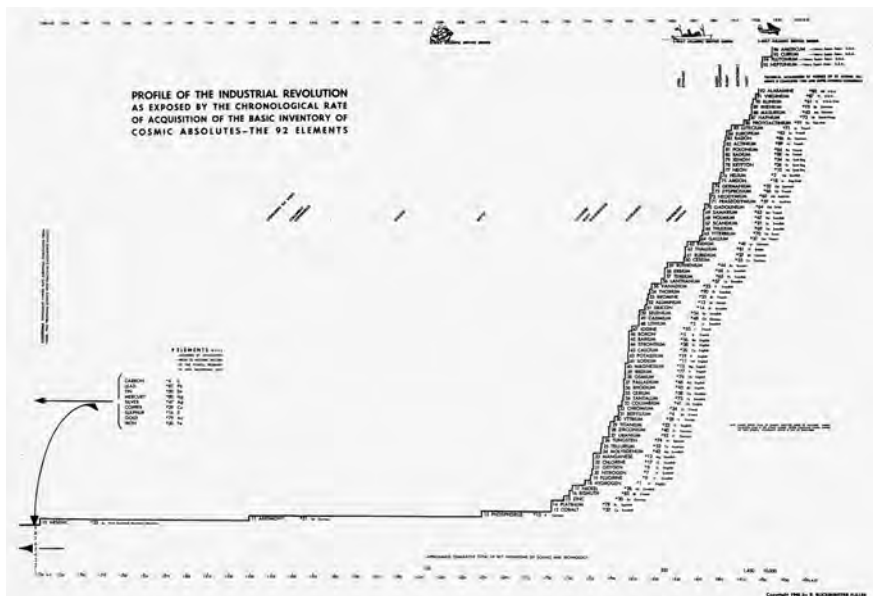
The vector equilibrium "projection" of the Dymaxion Map. Fuller's earlier version divided each face edge into only four segments. A three-way grid is visible in the triangular faces.



Cynthia Lacey on the mast of the Wichita House prototype at the Krehbiel building.



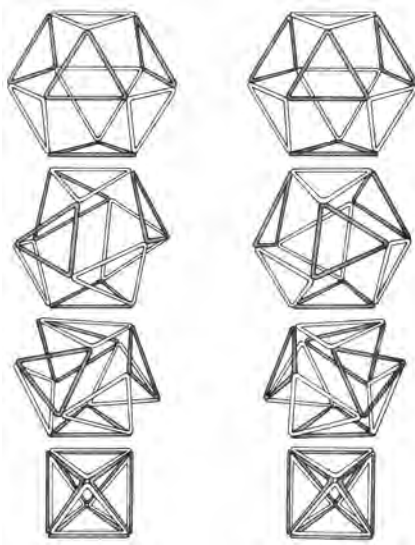
Outdoor prototype of the Wichita House.



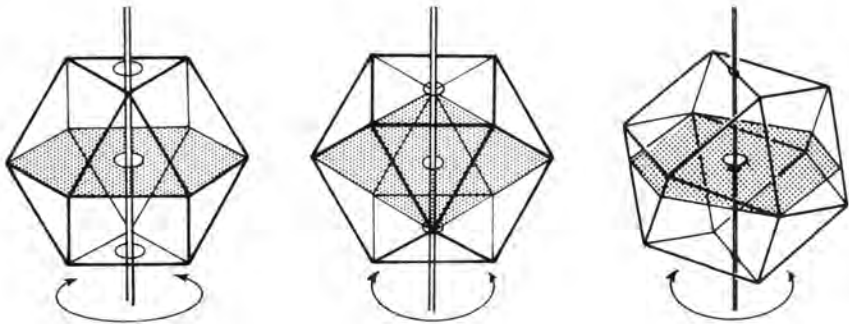
Fuller and Cynthia Lacey's timeline of the discovery of the chemical elements.



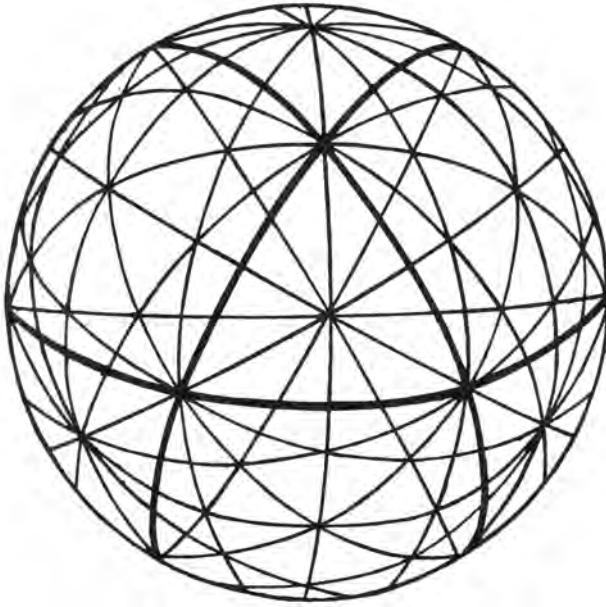
Cynthia Lacey.



The jitterbug transformation moves through the vector equilibrium, icosahedron, and octahedron as it rotates in either a left- or a right-hand contraction. Additional folding of the final stage produces the tetrahedron.



Rotation of the vector equilibrium around its faces, vertices, and edges.



The twenty-five great circles produced by rotation of the vector equilibrium.

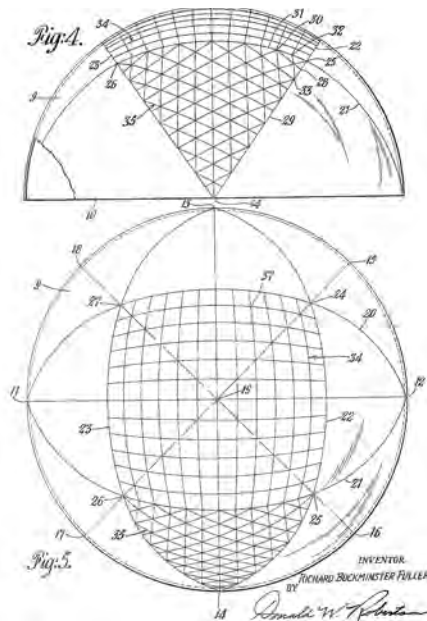
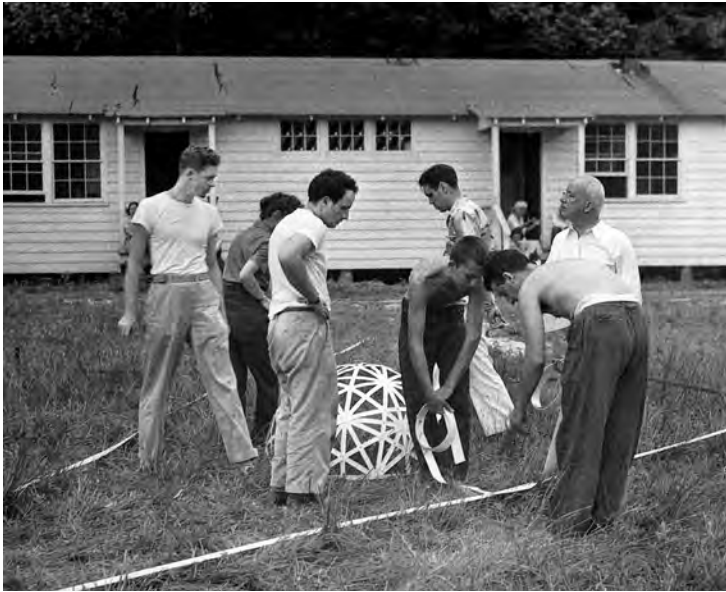


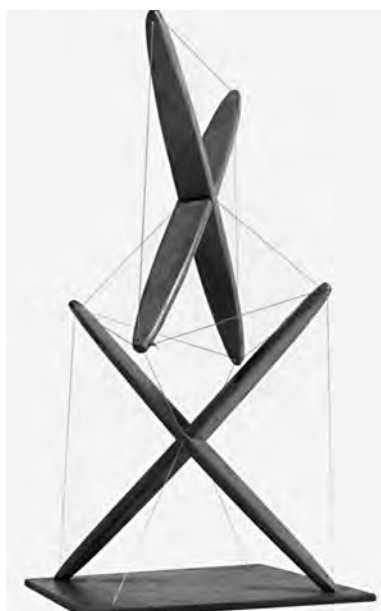
Illustration of a hemisphere with a three-way grid from the patent for the Dymaxion Map (1944).



The “supine dome” under construction at Black Mountain by Fuller (far right) in the summer of 1948.
A model of the thirty-one great circles of the icosahedron is visible on the ground.



Students lifting the Necklace Dome at Black Mountain (1949). Photograph by Masato Nakagawa.



Early X Piece by Kenneth Snelson. This version of the lost original was re-created in 1959.



The Weatherbreak Dome on West Island, Quebec (December 1950).



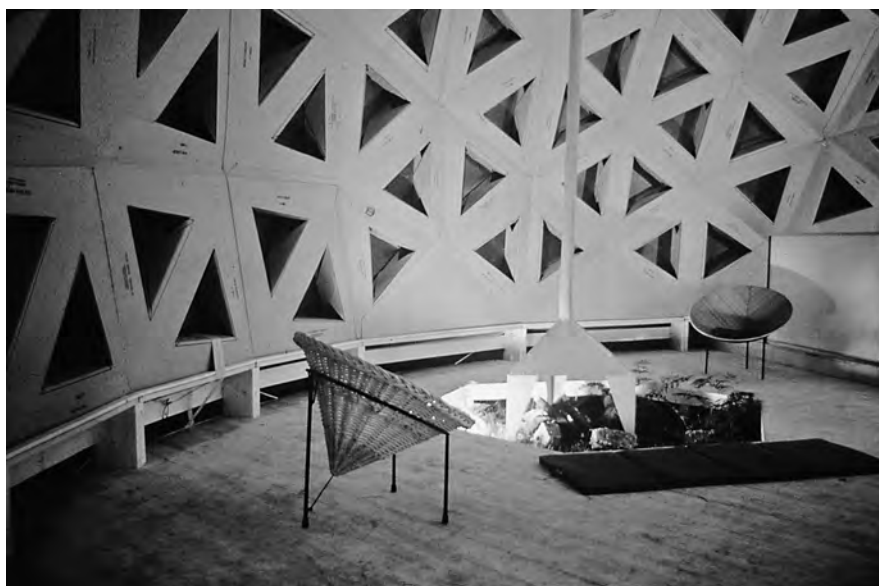
Interior view of the dome of the Ford Rotunda.



Fuller with the dome constructed by students from the University of Minnesota in Aspen, Colorado, in June 1953.



Discontinuous compression, continuous tension sphere at Princeton University (1953).



Interior of one of the two paperboard domes at the Milan Triennale (1954).



Fuller witnessing the helicopter airlift of a wooden dome in Raleigh, North Carolina, on January 28, 1954.



Radome on the Distant Early Warning Line.



The catenary dome of the United States Pavilion in Kabul, Afghanistan (1956).



The grand opening of Kaiser's geodesic auditorium at the Hawaiian Village Hotel in Honolulu on February 17, 1957.



The interior of the Union Tank Car Dome in Baton Rouge, Louisiana (1958).
A smaller internal dome served as a central hub and control tower.



Rendering of floating cloud structures (Cloud Nines) by Fuller and Shoji Sadao.
This photomontage dates from around 1960.



Fuller and Frank Lloyd Wright at Taliesin West (March 1959).



Rendering of the Dome over Manhattan by T. C. Howard.
This photomontage dates from around 1960.



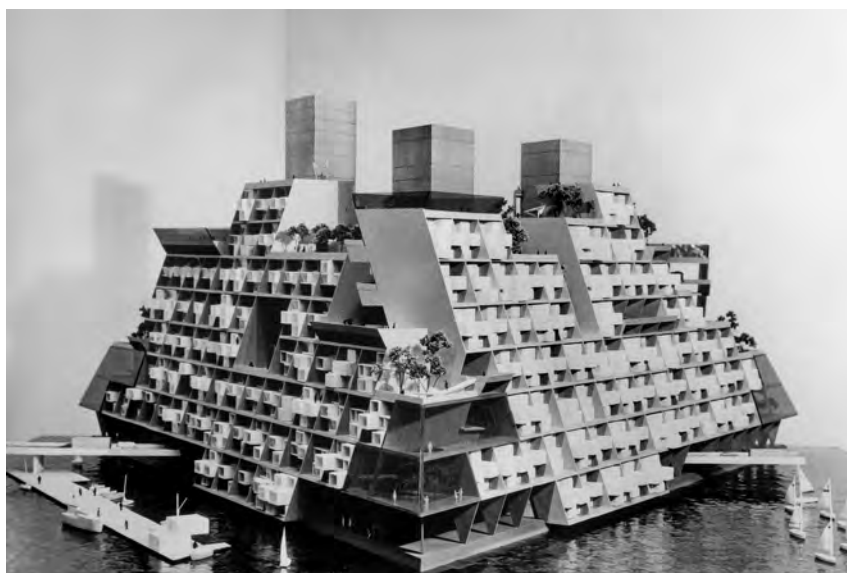
Fuller at the dome built by Kaiser Aluminum in Moscow (1959).



Fuller and Anne in the living room of their dome house in Carbondale.



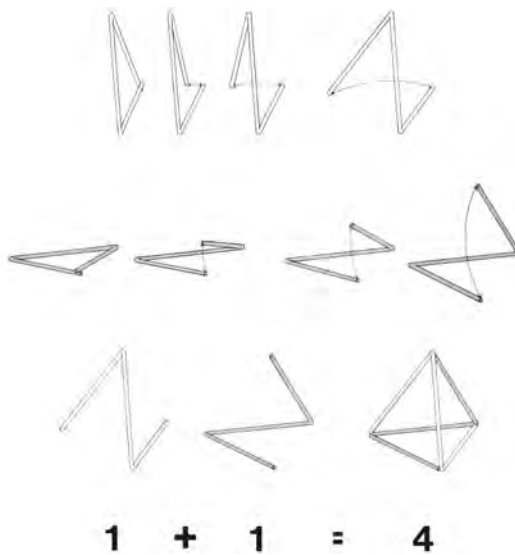
Exterior view of the US Pavilion for Expo 67 in Montreal.



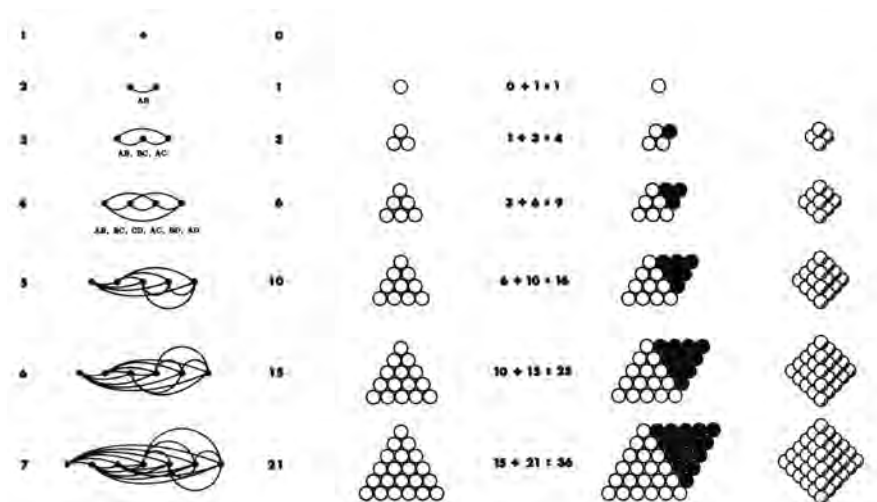
Model of Triton City (1968) displayed at the Lyndon Baines Johnson Library and Museum in Austin, Texas.



Fuller lecturing at the World Game workshop at the New York Studio School (1969). Two large copies of the icosahedral version of the Dymaxion Map hang on the walls.



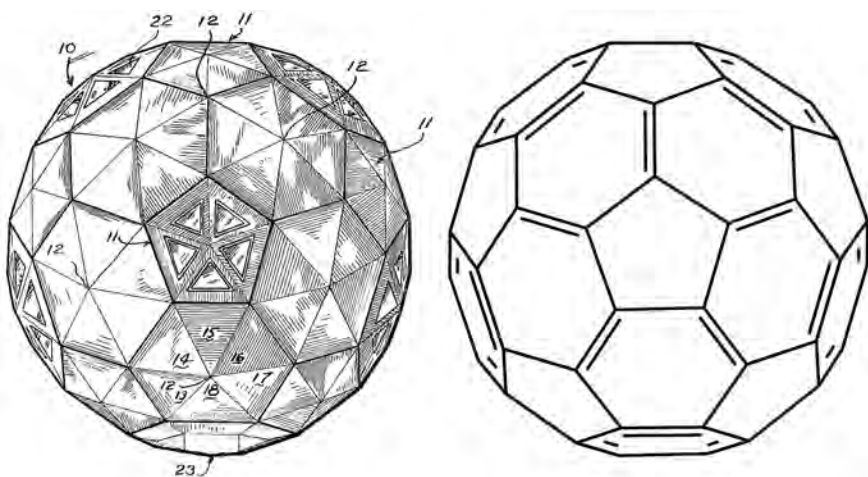
The first illustration in the text of *Synergetics*. "Two triangles may be combined in such a manner as to create the tetrahedron, a figure volumetrically embraced by four triangles. Therefore, one plus one seemingly equals four."



"Underlying Order in Randomness," illustrating how the number of relationships between events can be visualized as triangular and tetrahedral numbers. The original version was copyrighted by Fuller in 1965.



Fuller and the fifty-foot version of the Fly's Eye Dome installed at the Los Angeles Bicentennial in December 1980.



An overhead view of the Hexa-Pent Dome patented by Fuller and Sadao in 1974 (left) corresponds exactly with the chemical structure of buckminsterfullerene.

NOTES

For the period before 1951, the dates and details of events in Fuller's life can be verified most directly by consulting the Dymaxion Chronofile at Stanford University, especially when paired with the collection's exhaustive finding aid. After the early fifties, when the expansion of the archives makes this approach less practical, the most useful starting point is Fuller's increasingly detailed itinerary in the Dymaxion Index ("Section 11. Schedule of Lectures, Projects and Days," R. Buckminster Fuller Papers, Department of Special Collections and University Archives, Green Library, Stanford, CA, M1090, Series 4, Subseries 13, Mixed Materials 6–7). To keep these notes to a manageable length, citations for the archives are provided only for direct quotations and when the location of the original source might be unclear to researchers with access to the finding aid and itinerary.

Unless indicated otherwise, all references to boxes, volumes, and folders in the Stanford archive refer to the Dymaxion Chronofile in the R. Buckminster Fuller Papers, M1090, Series 2. References to Applewhite's *Synergetics Dictionary* follow the numbering system of the version made available by R. W. Gray at "Synergetics Dictionary Online" (<http://www.rwgrayprojects.com/SynergeticsDictionary/SD.html>). Full transcripts of the *Everything I Know* lectures were accessible at the time of writing at the website of the Buckminster Fuller Institute (<https://www.bfi.org>). Except where necessary to convey aspects of the writer's thinking or personality, spelling and punctuation have gener-

ally been standardized in quotations from letters and other primary sources.

ABBREVIATIONS

AHF	Anne Hewlett Fuller
AMS	R. Buckminster Fuller, <i>An Autobiographical Monologue/Scenario</i>
Anthology	R. Buckminster Fuller, <i>Anthology for the Millennium</i>
BFR	R. Buckminster Fuller, <i>The Buckminster Fuller Reader</i>
“BV”	Loretta Lorange, “Building Values: Buckminster Fuller’s Dymaxion House in Context” (dissertation)
CP	R. Buckminster Fuller, <i>Critical Path</i>
Discourse	R. Buckminster Fuller, <i>Your Private Sky: Discourse</i>
EIK	R. Buckminster Fuller, <i>Everything I Know</i>
4DT	R. Buckminster Fuller, <i>4D Time Lock</i>
Harvard file	Student folder of Richard Buckminster Fuller, Harvard University Archives, Undergraduate Student Records, UAIII 15.88.10 1890–1968, box 1690
Hatch	Alden Hatch, <i>Buckminster Fuller: At Home in the Universe</i>
“Influences”	RBF, “Influences on My Work,” in <i>Ideas and Integritys</i> , 9–34
Itinerary	“Dymaxion Index—Section 11. Schedule of Lectures, Projects and Days” (R. Buckminster Fuller Papers, M1090, Series 4, Subseries 13, Mixed Materials 6–7)
Lorange	Loretta Lorange, <i>Becoming Bucky Fuller</i>
Marks	R. Buckminster Fuller and Robert Marks, <i>The Dymaxion World of Buckminster Fuller</i>
RBF	Richard Buckminster Fuller
Sadao	Shoji Sadao, <i>Buckminster Fuller and Isamu Noguchi: Best of Friends</i>
SD	R. Buckminster Fuller, <i>Synergetics Dictionary: The Mind of Buckminster Fuller</i>
UOO	R. Buckminster Fuller, <i>Utopia or Oblivion</i>

Wong Yunn Chii Wong, “The Geodesic Works of Richard Buckminster Fuller” (dissertation)

PROLOGUE: GEODESIC MAN

- 1 “I’ve got Bucky Fuller here”: Taylor Barcroft, interviewed by author, July 1, 2020.
- 1 **Apple Computer:** RBF’s itinerary and correspondence with Taylor Barcroft (B426-F4) indicate that this tour was originally scheduled to take place at Atari. Barcroft decided shortly beforehand to visit Apple instead (Barcroft, author interview).
- 1 “I knew Steve”: Barcroft, author interview.
- 2 “Buckminster Fuller’s here”: Daniel Kottke, interviewed by author, May 21, 2019.
- 2 **driver’s license:** RBF driver’s license, issued June 29, 1936, B35-V54.
- 3 “He didn’t believe it”: Barcroft, author interview.
- 3 “In my early friendship”: Daniel Kottke, interviewed by author, March 20, 2019.
- 3 “make the world work”: RBF, “Keynote Address at Vision 65,” in *Utopia or Oblivion: The Prospects for Humanity* (New York: Bantam Books, 1969), 125. Referred to hereafter as *UOO*.
- 3 “an emerging synthesis”: RBF, “The Comprehensive Designer,” in *Your Private Sky: Discourse*, ed. Joachim Krausse and Claude Lichtenstein (Zurich: Lars Müller, 2001), 243. Referred to hereafter as *Discourse*.
- 3 “one of the bibles”: Steve Jobs, Stanford commencement address, June 12, 2005, <https://news.stanford.edu/2005/06/14/jobs-061505> (accessed January 2021).
- 4 **Apple lobby:** Jerry Manock, interviewed by author, March 13, 2019.
- 4 “The insights”: Stewart Brand, *Whole Earth Catalog*, Fall 1968, 3.
- 4 “Google in paperback form”: Jobs, Stanford commencement address, June 12, 2005.
- 4 “That definitely comes”: Stewart Brand interview, *The Tim Ferriss Show*, February 3, 2018, <https://tim.blog/2018/02/03/the-tim-ferriss-show-transcripts-stewart-brand> (accessed January 2021).
- 4 “The stuff came out”: Evgeny Morozov, “Making It,” *New Yorker*, January 13, 2014, 70.
- 4 **Marc LeBrun:** John Markoff, *What the Dormouse Said* (New York: Penguin, 2006), 183–84.
- 4 **Lee Felsenstein:** Lee Felsenstein, email to author, December 18, 2020.
- 4 “an architect and engineer”: Charles Raisch, “Pueblo in the City,” *Mother Jones*, May 1976, 30.

- 4 **ideas for the Exploratorium:** Hilde Hein, *The Exploratorium: The Museum as Laboratory* (Washington, DC: Smithsonian Institution, 1990), 239n10.
- 5 **Efrem Lipkin:** Steven Levy, *Hackers: Heroes of the Computer Revolution* (Sebastopol, CA: O'Reilly Media, 2010), 164–65.
- 5 **Ken Colstad and Mark Szpakowski:** “St. Jude Memorial and Virtual Wake,” <https://people.well.com/conf/inkwell.vue/topics/190/St-Jude-Memorial-and-Virtual-Wak-page01.html> (accessed April 2021).
- 5 **“a textbook example”:** Levy, *Hackers*, 219.
- 5 **grounded in Fuller’s philosophy:** Barry Katz, *Make It New: The History of Silicon Valley Design* (Cambridge, MA: MIT Press, 2015), 121. In the fifties, RBF lectured three times at Arnold’s “Creative Engineering” course at MIT. R. Buckminster Fuller Papers M1090, Department of Special Collections and University Archives, Green Library, Stanford, CA, “Section 11. Schedule of Lectures, Projects and Days,” Series 4, Subseries 13, Mixed Materials 6–7, June 25, 1954, June 25, 1955, and June 22, 1956. Referred to hereafter as Itinerary.
- 5 **“He wasn’t interested”:** Manock, author interview. When Manock opened his consulting business after college, he printed business cards that said “Manock, Comprehensive Design” (Manock, email to author, January 11, 2021).
- 6 **“He was kind of an intuitive”:** Alan Kay, interviewed by author, December 3, 2019.
- 6 **“My dad was more”:** Jennifer Kahn, “The Visionary,” *New Yorker*, July 11, 2011, 53.
- 6 **“very much in reference to Fuller”:** Jaron Lanier, interviewed by author, March 12, 2019.
- 6 **“The way everything is triangulated”:** Ibid.
- 6 **“enchanted by Buckminster Fuller”:** Jaron Lanier, *Dawn of the New Everything: Encounters with Reality and Virtual Reality* (New York: Henry Holt, 2017), 86.
- 6 **“For those who have context”:** Lanier, author interview. Andy Hertzfeld of Apple recalled RBF as a more marginal presence: “I was vaguely familiar with Fuller’s work and have a hazy recollection of folks talking about him at Apple, but I don’t remember anything specific” (email to author, March 23, 2019). Another figure to cite RBF as an influence was Ted Nelson, the author of the 1974 book *Computer Lib*, who was inspired by the word *Dymaxion* to coin the term *hypertext* (Michael Fraase, *Macintosh Hypermedia*, vol. 1, *Reference Guide* [Glenview, IL: Scott, Foresman, 1990], 31).
- 6 **“prophetical voices”:** Theodore Roszak, *From Satori to Silicon Valley* (San Francisco: Don’t Call It Frisco, 1986), 18.
- 6 **“Fuller and his Bay Area disciples”:** Ibid., 20–21.

- 6 “cut from the mold”: Ibid., 35.
- 6 “the twentieth century’s Leonardo da Vinci”: Steve Wozniak, blurb for Lloyd Steven Sieden, ed., *A Fuller View: Buckminster Fuller’s Vision of Hope and Abundance for All* (Studio City, CA: Divine Arts, 2011). Wozniak was echoing a frequent comparison, with the most common version—“the Leonardo da Vinci of the twentieth century”—often attributed to Marshall McLuhan, who actually praised RBF as “the twentieth century Pythagoras” (McLuhan to Bruce Carrick, September 10, 1974, B375-V6).
- 7 Janek Kaliczak: Itinerary, February 1, 1982.
- 7 “the Han Solo of the Apple world”: David Hunter, “Graphics in the Sky with Diamond Vision,” *Softalk*, July 1983, 88.
- 7 “a graphical display”: George Madarasz to RBF, March 31, 1983, B482-F1.
- 7 “but maybe better”: Steve Wozniak with Gina Smith, *iWoz: Computer Geek to Cult Icon—How I Invented the Personal Computer, Co-founded Apple, and Had Fun Doing It* (New York: W. W. Norton, 2006), 246.
- 7 Fuller and the World Game: Hunter, “Graphics in the Sky,” 86.
- 8 legacy at Apple: Jobs later hired RBF’s former associate Norman Foster to design the company’s corporate headquarters. Foster thought that RBF was only “lurking in the background” of Apple Park (Norman Foster, interviewed by author, October 30, 2020), but he credited him afterward for inspiring the glass dome of the Apple Marina Bay Sands store in Singapore (Norman Foster, “Buckminster Fuller—File for Future,” provided to the author by Foster).
- 8 “Here’s to the crazy ones”: “Apple—Think Different—Full Version,” YouTube, 1:09, Harry Piotr, September 30, 2013, <https://www.youtube.com/watch?v=5sMBhDv4sik>.
- 8 request of Jobs himself: Luke Dormehl, *The Apple Revolution: The Real Story of How Steve Jobs and the Crazy Ones Took Over the World* (London: Virgin, 2012), 395, and Leander Kahney, *Inside Steve’s Brain* (New York: Portfolio, 2008), 130.
- 8 “You can quote them”: “Apple—Think Different—Full Version,” YouTube, <https://www.youtube.com/watch?v=5sMBhDv4sik>.
- 8 “Apart from the temporary notoriety”: Alden Hatch, *Buckminster Fuller: At Home in the Universe* (New York: Crown, 1974), 1. Referred to hereafter as Hatch.
- 9 Spaceship Earth: RBF compared the earth to a spaceship as early as 1951 (“Fuller Lectures on Motion Trend,” *Kingston [NY] Daily Freeman*, July 25, 1951, 9). The first notable use of the exact phrase was evidently by James E. Webb, the head of NASA, in a speech in 1962: “We are all space travelers on the good spaceship Earth” (Jean Pearson, “You’re a Spaceman, Too,” *Detroit Free Press*, April 7, 1962, 24). Its popularization was overwhelmingly due to RBF, who began to use it frequently around 1967.

- 9 **“My objective”**: RBF, with Jerome Agel and Quentin Fiore, *I Seem to Be a Verb* (New York: Bantam Books, 1970), 9.
- 10 **All of these “artifacts”**: RBF, *Education Automation: Freeing the Scholar to Return to His Studies; A Discourse Before the Southern Illinois University, Edwardsville Campus Planning Committee, April 22, 1961* (Carbondale: Southern Illinois University Press, 1962), 12.
- 10 **“They appear exciting”**: Lloyd Kahn and Bob Easton, *Shelter II* (Bollinas, CA: Shelter, 2010), 200.
- 11 **created a convoluted language**: One saying often credited to RBF is “Think globally, act locally” (for example, on the dust jacket of *Discourse*). It appears nowhere in his published work, and the attribution may have originated in a quote from his biographer Lloyd Steven Sieden: “There’s a phrase today: ‘Think globally, act locally,’ and Fuller was talking about that 40 years ago” (Dennis McLellan, “Futurist Provides Fuller Explanation for Passengers on Spaceship Earth,” *Los Angeles Times*, July 7, 1989, pt. 9, 6).
- 11 **knew the word *synergy***: RBF, *Operating Manual for Spaceship Earth* (1969; New York: E. P. Dutton, 1978), 73.
- 11 **“Nothing—an electromagnetic field”**: RBF, “Domes,” in *Synergetics Dictionary: The Mind of Buckminster Fuller*, comp. and ed. E. J. Applewhite, 4 vols. (New York: Garland, 1986), 4186. Referred to hereafter as *SD*.
- 12 **“Ephemeralization trends toward”**: RBF, *Critical Path*, Kiyoshi Kuromiya, adjuvant (New York: St. Martin’s Press, 1981), 234. Referred to hereafter as *CP*.
- 12 **“the increasing tendency”**: Paul Graham, “Tablets,” December 2010, <http://www.paulgraham.com/tablets.html> (accessed January 2021).
- 12 **page in his wallet**: Rich Heinemeyer, interviewed by author, February 17, 2020.
- 12 **“We owe the notion”**: Yves Béhar interview, “Buckminster Fuller: Utopia Rising,” <https://www.nowness.com/story/buckminster-fuller-utopia-rising> (accessed February 2021).
- 13 **“emergence through emergency”**: RBF, *Nine Chains to the Moon* (Philadelphia: J. B. Lippincott, 1938), 240–46.
- 13 **“The individual can simply”**: RBF, “Bureaucracy,” in *SD*, 01674.
- 13 **largest of its kind**: Robert Kahn and Medard Gabel, “The Fuller Archives and the Dymaxion Index,” Series 4, B5-F1, 2.
- 13 **“the ethereal world of software”**: Derek Thompson, “Where’s My Flying Car?,” *Atlantic*, January/February 2020.
- 13 **most influential futurist**: George Thomas Kurian and Graham T. T. Molitor, eds., *Encyclopedia of the Future*, vol. 2 (New York: Macmillan, 1996), 1077.

- 13 “There hasn’t been anybody”: Philip Johnson, interviewed in *Buckminster Fuller: Thinking Out Loud*.
- 14 “to revert to saying”: RBF and Anwar Dil, *Humans in Universe* (New York: Mouton, 1983), 95.
- 14 “above all a mystic”: Hatch, 2.
- 14 “Blacks skillfully persuaded”: RBF, “Race,” in *SD*, 14611.
- 14 “I tell students to stop”: RBF, “The Designers and the Politicians,” in *The Buckminster Fuller Reader*, ed. James Meller (Harmondsworth, UK: Penguin, 1972), 373. Referred to hereafter as *BFR*.
- 14 “more square feet”: Douglas Auchincloss, “The Dymaxion American,” *Time*, January 10, 1964, 46.
- 14 **few thousand permanent structures**: RBF stated that around two thousand geodesic domes were installed around the world by 1961 (*CP*, 391, and Yunn Chii Wong, “The Geodesic Works of Richard Buckminster Fuller, 1948–1968 (The Universe as a Home of Man)” [doctoral thesis, Massachusetts Institute of Technology, 1999], 395; referred to hereafter as Wong). By 1965 his estimate rose to six thousand, which included playdomes (“Emergent Humanity,” in *R. Buckminster Fuller on Education*, ed. Peter H. Wagschal and Robert D. Kahn [Amherst: University of Massachusetts Press, 1979], 109). According to Calvin Tomkins, the number around this time was “more than three thousand” (“In the Outlaw Area,” *New Yorker*, January 8, 1966, 73), while a 1969 profile raised the number to more than five thousand (Fred Warshofsky, “Meet Bucky Fuller, Ambassador from Tomorrow,” *Reader’s Digest*, November 1969, 99). RBF’s original dome patent expired in 1971. These numbers contrast starkly with the unverified claims of two hundred thousand (RBF, “The Way We Live: Reflections and Projections,” *Architectural Digest*, June 1978, 24) or even three hundred thousand domes, including a hundred thousand playdomes (RBF and Dil, *Humans in Universe*, 86).
- 15 **his masterpiece**: Kurt Solter and Michael Snyder, “The 25 Most Significant Works of Postwar Architecture,” *New York Times Style Magazine*, August 2, 2021.
- 15 “The way the world”: Edwin Schlossberg, interviewed by author, March 27, 2019.
- 15 “Everyone who was close to him”: Harold Cohen, interviewed by author, March 6, 2021.
- 15 “the planet’s friendly genius”: William Overend, “Fuller, ‘the Planet’s Friendly Genius,’” *Los Angeles Times*, March 2, 1977, pt. 4, 1.
- 15 “a public relations tool”: Loretta Lorance, *Becoming Bucky Fuller* (Cambridge, MA: MIT Press, 2009), 228. Referred to hereafter as Lorance.
- 15 **overflowed with misinformation**: In addition to the errors documented in the text, RBF incorrectly stated that the mass of the earth was increasing

due to its accumulation of “stardust,” which would end in the planet becoming a star itself (RBF, *Intuition* [Garden City, NY: 1972], 105 and 115); that “the relative abundance of chemical elements” in the body was “congruent” with their percentages in the universe (RBF, *Everything I Know*, session 3, Amazon Kindle edition, 2019; referred to hereafter as *EIK*); and that ships were drawn to each other at close proximity because of gravitational attraction (RBF, *EIK*, session 6). For his errors in the geometry of chemical bonds, see Hugh Kenner, *Bucky: A Guided Tour of Buckminster Fuller* (New York: William Morrow, 1973), 118–20 and 277. On his misleading description of the pattern of buckling in spherical shells observed at General Dynamics, see Tibor Tarnai, “Geodesic Domes: Natural and Man-Made,” *International Journal of Space Structures* 26, no. 3 (September 2011): 8.

- 16 **“mythologize his childhood”**: E. J. Applewhite, *Cosmic Fishing: An Account of Writing Synergetics with Buckminster Fuller* (New York: Macmillan, 1977), 81.
- 16 **“In the future”**: Lloyd Steven Sieden, *Buckminster Fuller’s Universe: An Appreciation* (1989; Cambridge, MA: Perseus, 2000), xiii.
- 16 **world’s unrealized ability**: The architectural theorist Sanford Kwinter described this challenge as “the marriage of fixed and intellectual capital,” and he concluded, “To get there, we must pass through Fuller” (Kwinter, “Fuller Themselves,” *ANY: Architecture New York* 62, no. 17 [1997]: 62).
- 16 **“It has always seemed to me”**: Calvin Tomkins to RBF, January 5, 1977, Calvin Tomkins Papers, Museum of Modern Art, folder I.13.
- 17 **“When you’ve made”**: Tomkins, “In the Outlaw Area,” *New Yorker*, January 8, 1966, 78.
- 17 **“Because I live”**: RBF, “Design Strategy,” in *UOO*, 335–36.

PART ONE: ORIGINS

- 19 **“It is one of the strange facts”**: RBF with E. J. Applewhite, *Synergetics: Explorations in the Geometry of Thinking* (New York: Macmillan, 1975), 278.

ONE: NEW ENGLAND

- 21 **“The tactile is very unreliable”**: *Ibid.*, 441.
- 21 **Richard Buckminster Fuller Jr.**: Sources consulted on RBF’s childhood include Hatch, 11–30; Athena V. Lord, *Pilot for Spaceship Earth* (New York: Macmillan, 1978), 5–17; RBF, “What It Was Like to Grow Up in the Boston Area,” May 1, 1979, Series 1, B2-F2; RBF, in Jeffrey L. Lant, ed.,

- Our Harvard: Reflections on College Life by Twenty-two Distinguished Graduates* (New York: Taplinger, 1982), 3–11; Miriam Rumwell, *Time* profile notes, Takes 1 and 2, December 23, 1963, B126-F4; and the chronology in *CP*, 379–80.
- 21 **“And down will come baby”**: RBF, “Vertical Is to Live, Horizontal Is to Die,” in *Discourse*, 280.
- 22 **his older sister, Leslie**: RBF’s older sister was baptized Caroline Lesley Fuller. She used the spelling “Lesley” until at least 1916, but “Leslie” became more common in primary sources by the time of her second marriage in 1927. For the sake of consistency, “Leslie” will be used throughout this book.
- 22 **by their smells**: RBF, *EIK*, session 6.
- 22 **“So every time”**: “R. B. Fuller Lecture at San Quentin Prison,” January 31, 1959, Series 8, B15-V11, 12.
- 22 **“Slow and Solid”**: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 22 **Friedrich Froebel**: “Froebel’s Gifts,” 99% *Invisible*, April 9, 2019, <https://99percentinvisible.org/episode/froebels-gifts> (accessed September 2021).
- 23 **“When I got to the triangle”**: RBF, interviewed by Hans Meyer, in Lloyd Kahn, *Domebook 2* (Bollinas, CA: Pacific Domes, 1971), 90. As noted in chapter 7, RBF said elsewhere that he built a full “octet truss” (RBF with E. J. Applewhite, *Synergetics 2: Explorations in the Geometry of Thinking* [New York: Macmillan, 1979], 232). A handwritten note about his teacher, Grace Parker Hatch, refers more plausibly to his kindergarten construction as his “first tetra” (B1-V1).
- 24 **“I love and trust you”**: RBF and Dil, *Humans in Universe*, 75.
- 24 **picture book**: Fred M. Taylor, “The ‘Bubble House’ and Other Summer Projects,” *Student Publications of the School of Design*, North Carolina State College, Fall 1952, 24.
- 24 **“to be out in that green grass”**: RBF, “Intuition of the Child,” in *SD*, 8747.
- 24 **“the coming years”**: RBF, *CP*, 57.
- 24 **raised as a Unitarian**: RBF himself would occasionally be described as a Unitarian, but he was raised in the Episcopal Church, and his beliefs in adulthood were too idiosyncratic to be easily categorized.
- 24 **smell of incense**: RBF, *EIK*, session 11.
- 24 **“a little liar”**: RBF, *R. Buckminster Fuller: An Autobiographical Monologue/Scenario* (New York: St. Martin’s Press, 1980), 9. Documented and edited by Robert Snyder. Referred to hereafter as AMS.
- 24 **“So to avoid”**: Ibid.
- 24 **“the love of its conceiver”**: RBF, “The Bear Island Story,” Series 7, B6-F14, 33.
- 24 **Spartan boy**: Applewhite, *Cosmic Fishing*, 150.

- 24 **new moon**: Ibid., 103.
- 24 **burned up her nightgown**: RBF note to Ann Mintz (undated), Series 1, B2-F2.
- 25 **Great Chicago Fire**: Ibid.
- 25 **elementary school**: Educational timeline based on RBF résumé in B8-V16.
- 25 **“Bucky, when I was in first grade”**: Hatch, 14.
- 25 **“an act which I have regretted”**: RBF to David Travers, January 18, 1982, B489-F2.
- 25 **“he would pick up”**: RBF, *Grunch of Giants* (1983; Santa Barbara, CA: Design Science, 2008), 56.
- 25 **family home**: Architectural background on the Milton house and the Big House on Bear Island is drawn from Margaret Henderson Floyd, *Architecture After Richardson: Regionalism Before Modernism—Longfellow, Alden, and Harlow in Boston and Pittsburgh* (University of Chicago, 1994), 123–25 and 430–35. The current address of the Milton house is 85 Columbine Road (RBF, “The Bear Island Story,” Series 7, B6-F14, 12).
- 25 **“a rather large Gay Nineties Victorian”**: AMS, 9.
- 26 **“to get rid of the evil fairies”**: Hugh Kenner, “Bucky Fuller and the Final Exam,” *New York Times Magazine*, July 6, 1975, 10.
- 26 **“gypsy camps”**: RBF, “What It Was Like to Grow Up in the Boston Area,” May 1, 1979, Series 1, B2-F2, 7.
- 26 **“The road curved”**: Ibid., 1.
- 26 **carried knives**: RBF, “Guinea Pig B,” in *Inventions: The Patented Works of R. Buckminster Fuller* (New York: St. Martin’s Press, 1983), xviii.
- 26 **suits of armor**: RBF, “Child Sequence,” in *SD*, 1968.
- 27 **Bear Island**: Descriptions of Bear Island and its history are drawn from *Bear Island Centennial Book, 1904–2004* (privately pub.), 31–34 and 41–71, and RBF, “The Bear Island Story,” Series 7, B6-F14.
- 28 **“a pair of hinged oar blades”**: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 28 **“teepee-like”**: RBF, “Influences on My Work,” in *Ideas and Integrity: A Spontaneous Autobiographical Disclosure*, ed. Robert W. Marks (New York: Collier Books, 1969), 10. Referred to hereafter as “Influences.”
- 29 **“mechanical jellyfish”**: Hatch, 21.
- 29 **“If you are going to survive”**: RBF, “Keynote Address at Vision 65,” in *UOO*, 122. RBF gave various dates for this conversation, but the chronology and details point to here.
- 29 **recovered from appendicitis**: RBF résumé, B8-V16. RBF claimed to have been the recipient of “one of [the] first appendectomies by Dr. Dan Jones of Massachusetts General Hospital” (RBF, *CP*, 380).
- 29 **skipping stones**: RBF, *Cosmography: A Posthumous Scenario for the Future of Humanity*, Kiyoshi Kuromiya, adjuvant (New York: Macmillan, 1992), 121.

- 29 “He who calls his brother a fool”: RBF, “Guinea Pig B,” in *Inventions*, xii.
- 29 wooden playpen: *Your Private Sky: R. Buckminster Fuller—The Art of Design Science*, ed. Joachim Krausse and Claude Lichtenstein (Zurich: Lars Müller, 2017), 70.
- 29 a storm came: RBF and Dil, *Humans in Universe*, 78–79. RBF claimed incorrectly to have been nine years old at the time, which is contradicted by the chronology.
- 29 “These two ideas”: RBF, handwritten notes, B24-V39.
- 30 brain tumor: Harvard Class of 1883, Thirtieth Anniversary Report, 70.
- 30 “when they were played”: RBF, “The Bear Island Story,” Series 7, B6-F14, 18.
- 30 “desissifying” treatment: RBF, “Lightful Houses,” in Loretta Lorance, “Building Values: Buckminster Fuller’s Dymaxion House in Context” (dissertation, City University of New York, 2004), 390. Referred to hereafter as “BV.”
- 31 “She wanted me to get angry”: RBF, “Anger,” in *SD*, 408.
- 31 “would undoubtedly”: RBF, “Lightful Houses,” 391.
- 31 “horrid smells”: RBF, “The Music of the New Life,” in *UOO*, 32.
- 31 “straitjacket” of his desk: *Ibid.*
- 31 “a town-wide riot of joy”: RBF, “Race,” in *SD*, 14611.
- 31 “I whooped”: *Ibid.*
- 31 “Dare to tell the truth”: RBF, “Mistake Mystique,” in *Discourse*, 295.
- 31 “One mark for Fuller”: RBF with Applewhite, *Synergetics*, 68.
- 32 As the school “antifavorite”: *Ibid.*
- 32 “I assumed that I was just a freak”: RBF, *EIK*, session 2.
- 32 “I am now going to teach you”: Tomkins, “In the Outlaw Area,” *New Yorker*, January 8, 1966, 52.
- 32 “out the window”: *Ibid.*, 53.
- 32 “How old is it?": *Ibid.*
- 32 “I thought she was very pretty”: *Ibid.*
- 32 first airplane: RBF, “Buckminster Fuller Chronofile,” in *BFR*, 13.
- 32 Halley’s comet: Jerred Metz, *Halley’s Comet, 1910: Fire in the Sky* (St. Louis: Singing Bone, 1985), 108.
- 32 “great confidence”: Wong, 505.
- 32 Grandmother Andrews had died: Allegra Fuller Snyder, “Bear Island Guest Book,” in *Bear Island Centennial Book, 1904–2004*, 42.
- 32 “on his deathbed screaming”: Margaret F. Eliot to “Mr. Appel,” February 10, 1966, Series 1, B2-F3.
- 32 Dr. Pierce next door: Allegra Fuller Snyder, “Bear Island Guest Book,” 43.
- 32 died of “apoplexy”: *The Harvard Graduates Magazine*, September 1910, 144.
- 33 Jim Hardie: Lucilla Fuller Marvel, “The Hardie Family,” in *Bear Island Centennial Book, 1904–2004*, 73–87.

- 33 “a most extraordinary”: RBF, “The Bear Island Story,” Series 7, B6-F14, 23.
- 33 Episcopal church: RBF confirmation certificate for Grace Church, January 22, 1911, B1-V1.
- 33 “such tension systems”: RBF, “Influences,” 10.
- 33 “darling” or “dear”: RBF, “The Bear Island Story,” Series 7, B6-F14, 17.
- 33 an estate of around \$150,000: Rumwell, *Time* profile notes, Take 2, December 23, 1963, B126-F4.
- 33 “I’d forge”: Ibid.
- 33 Rosamond remembered “shivering”: Tomkins, “In the Outlaw Area,” *New Yorker*, January 8, 1966, 85.
- 34 William Lusk Webster Field: RBF with Applewhite, *Synergetics* 2, 235.
- 34 Homer LeSourd: Ibid., 69, and Lord, *Pilot for Spaceship Earth*, 101.
- 34 Starling Burgess: Lord, *Pilot for Spaceship Earth*, 16.
- 34 “a song and dance man”: Allegra Fuller Snyder, quoted in Jaime Snyder, “Experiments in Food and Festivity,” afterword to *Synergetic Stew*, i.
- 34 broke a knee: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 34 junior exams: Student folder of Richard Buckminster Fuller, Harvard University Archives, Undergraduate Student Records, UA III 15.88.10, 1890–1968, box 1690. Referred to hereafter as Harvard file.
- 34 “too pretentious”: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 34 “Richard B. Fuller”: Allegra Fuller Snyder, “Bear Island Guest Book,” in *Bear Island Centennial Book, 1904–2004*, 43.
- 35 “I think Einstein”: RBF and Dil, *Humans in Universe*, 57.
- 35 sick with typhoid: Harvard Class of 1883, Secretary’s Report No. 1, 1883, 92.
- 35 “no offices of profit”: Harvard Class of 1883, Secretary’s Report No. 2, June 1886, 85.
- 35 he called her Sandy: RBF Sr. to “Sandy” (Caroline Fuller), September 3, 1890, B43-F10.
- 35 maternal Wolcott side: Genealogical information drawn from “Record of Direct Parentage of Allegra Fuller,” Series 1, B3-F5, and “Genealogy of Wolcott and Andrews Families,” Series 1, B2-F2.
- 35 moved to Chicago: Hugh Kenner writes that “the wedding of [Caroline’s] grandfather was the first to be solemnized in Chicago” (*Bucky*, 66). The man in question was really John Kinzie, whose daughter married the brother of Caroline’s great-grandfather (RBF, “Record of Direct Parentage of Allegra Fuller,” Series 1, B3-F5).
- 35 “freedom loving”: RBF, *Untitled Epic Poem on the History of Industrialization* (New York: Simon and Schuster, 1962), 9.
- 36 “the black eyes”: Richard F. Fuller, *Chaplain Fuller: Being a Life Sketch of a New England Clergyman and Army Chaplain* (Boston: Walker, Wise, 1863), 6.

- 36 **Salem witch trials:** Charles W. Upham, *Salem Witchcraft*, vol. 2 (Boston: Wiggin and Lunt, 1867), 25 and 172–73. Thomas Fuller Sr. and Jr. are listed as residents of Salem in vol 1., xix.
- 36 **Reverend Timothy Fuller:** Arthur Buckminster Fuller, *Historical Notices of Thomas Fuller and His Descendants, with a Genealogy of the Fuller Family, 1638–1902* (Cambridge, MA: 1902), 6–9.
- 36 **“a rebellion of the students”:** Ibid., 9.
- 36 **“an upright and decent posture”:** Edith Davenport Fuller, “Excerpts from the Diary of Timothy Fuller, Jr., An Undergraduate in Harvard College, 1798–1801,” *Proceedings of the Cambridge Historical Society* 11 (1920): 51.
- 36 **“too indolent or unenterprising”:** Megan Marshall, *Margaret Fuller: A New American Life* (New York: Houghton Mifflin Harcourt, 2013), 17.
- 36 **two of his children:** Another son, Richard Frederick Fuller, was the great-great grandfather of Timothy Geithner, the US secretary of the Treasury under Barack Obama. Geithner notes the connection through his mother in *Stress Test: Reflections on Financial Crises* (New York: Crown, 2014), 24. For a family tree, see <https://gw.geneanet.org/tdowling?lang=en&n=geithner&oc=0&p=timothy+franz> (accessed December 2020).
- 37 **“I must do something”:** Richard F. Fuller, *Chaplain Fuller*, 303.
- 37 **“the first important American woman”:** Susan Sontag, *Alice in Bed: A Play in Eight Scenes* (New York: Farrar, Straus & Giroux, 1993), 115.
- 37 **“wonderful child”:** Marshall, *Margaret Fuller*, 24.
- 37 **“nearsightedness, awkward manners”:** Ibid., 25.
- 37 **“no natural childhood”:** Ibid., 21.
- 37 **“And, even then”:** *Memoirs of Margaret Fuller Ossoli*, ed. Ralph Waldo Emerson, W. H. Channing, and James Freeman Clarke, vol. 1 (Boston: Emerson, Sampson, 1852), 141.
- 37 **“We shall go to him”:** RBF, notes on family Bible, November 10, 1975, Series 1, B2-V4.
- 38 **“I felt that the whole wealth”:** Ednah Dow Cheney, *Reminiscences of Ednah Dow Cheney* (Boston: Lee & Shepard, 1902), 205.
- 38 **“I now know”:** *Memoirs of Margaret Fuller Ossoli*, ed. Emerson, Channing, and Clarke, vol. 1, 234.
- 38 **“astonished and repelled”:** Ibid.
- 38 **“It was such an awful joke”:** Donna Dickenson, *Margaret Fuller: Writing a Woman’s Life* (London: Palgrave Macmillan, 1993), 32.
- 39 **“the tendency to respect”:** Ralph Waldo Emerson, “The Transcendentalist.”
- 39 **“But if you ask me”:** Margaret Fuller, *Woman in the Nineteenth Century*, in *The Portable Margaret Fuller*, ed. Mary Kelley (New York: Penguin Books, 1994), 328–29.

- 39 “At present I look”: Ibid., 317.
- 40 “what Margaret Fuller did”: RBF, *4D Time Lock* (Albuquerque, NM: Lama Foundation, 1972), 147. Referred to hereafter as *4DT*.
- 40 “The destiny of each”: Margaret Fuller, *The Letters of Margaret Fuller*, vol. 4, 1845–1847, ed. Robert N. Hudspeth (Ithaca, NY: Cornell University Press, 1987), 95.
- 41 “to fill the ear”: Marshall, *Margaret Fuller*, 80.
- 41 “in which we took”: Frederick Augustus Braun, *Margaret Fuller and Goethe* (New York: Henry Holt, 1910), 7–8.
- 41 “the physical resources”: RBF, “Margaret Fuller’s Prophecy,” in *BFR*, 41.
- 41 “I accept the universe”: William James, *The Varieties of Religious Experience* (1902; New York: Modern Library, 1994), 47.
- 41 “I must start with the universe”: AMS, 12.
- 41 “Chiefly the seashore”: Ralph Waldo Emerson, “Civilization.”
- 41 “The line of beauty”: Ibid., “Beauty.”
- 41 “Swedenborg approximated”: Margaret Fuller, *Woman in the Nineteenth Century*, 297.
- 41 “The genius which”: Ralph Waldo Emerson, “Swedenborg,” *Representative Men*.
- 42 “This man, who appeared”: Ibid.
- 42 “a freak”: Samuel Rosenberg, *The Confessions of a Trivialist* (Baltimore: Penguin, 1972), 76. RBF recalled discussing Sidis with the cyberneticist Norbert Wiener, another former prodigy of the same era at Harvard (Amy Wallace, *The Prodigy* [New York: E. P. Dutton, 1986], 157).
- 42 “mythical Harvard”: Hatch, 30.
- 42 Waldo Fuller: RBF, *CP*, 380.
- 42 “busted” his knee: RBF, “Later Development of My Work,” in *BFR*, 75, and RBF, *EIK*, session 7. RBF referred to breaking his knee for the second time “shortly after freshman practice started at Harvard” (RBF to J. Bryan III, July 1, 1939, B29-V46).
- 42 leaping from one dormitory roof: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 42 “Take it easy”: RBF, in *Our Harvard*, ed. Lant, 13.
- 43 “helped me through”: Ibid.
- 43 “I thought I’d take”: Tomkins, “In the Outlaw Area,” *New Yorker*, January 8, 1966, 53.
- 43 his schedule: Harvard file.
- 43 “very neglectful”: Memo by C. E. Whitmore, c. January 12, 1915, Harvard file.
- 43 first girl he ever loved “jilted”: AMS, 23. RBF dated this incident elsewhere to “just before entering college” (RBF, *Education Automation*, 4).

- 43 **John P. Marquand:** Stephen Birmingham, *The Late John Marquand: A Biography* (Philadelphia: J. B. Lippincott, 1972), 29–31.
- 43 **Brooks Atkinson:** AMS, 23.
- 43 **“too much of an oddball”:** Hatch, 32.
- 44 **“attracted some excellent members”:** RBF, in *Our Harvard*, ed. Lant, 11.
- 44 **“for his rum”:** RBF, “‘Life’ of R. Buckminster Fuller,” Series 8, B5-V2, 9.
- 44 **“a harbinger”:** RBF, CP, 130.
- 44 **“magically converted”:** RBF, in *Our Harvard*, ed. Lant, 14.
- 44 **“hired mother”:** RBF, EIK, session 7.
- 44 **debut in 1914:** “‘The Passing Show of 1914’ Prospers at the Shubert,” *Boston Sunday Globe*, October 18, 1914, 54.
- 45 **most celebrated version:** AMS, 24, and RBF, in *Our Harvard*, ed. Lant, 15.
- 45 **William J. Burns:** RBF to J. Bryan III, July 1, 1939, B29-V46.
- 45 **“He secured a considerable sum”:** Dean Henry A. Yeomans statement on R.B. Fuller disciplinary case, February 13, 1914, Harvard University Archives, UAIII 5.33, Disciplinary Records Series, box 372, folder Fa-Fu.
- 45 **he lived “riotously”:** Ibid.
- 46 **“Your failure to take”:** Henry A. Yeomans to RBF, February 4, 1914, Harvard file.
- 46 **“They can’t fire you”:** RBF, “Later Development of My Work,” in BFR, 75.
- 47 **“practical men”:** E. W. Atkinson to Byron Hurlbut, September 25, 1914, Harvard file.
- 47 **“to show him no favors”:** Ibid.
- 47 **Château Frontenac:** Cammie McAtee, “Geodesic Dreams: Jeffrey Lindsay and the Fuller Research Foundation Canadian Division,” in *Montreal’s Geodesic Dreams: Jeffrey Lindsay and the Fuller Research Foundation Canadian Division*, ed. McAtee (Halifax, NS: Dalhousie Architectural Press, 2017), 18.
- 47 **In the finished mill:** RBF, CP, 324.
- 47 **“a burlap bag”:** RBF to J. Bryan III, July 1, 1939, B29-V46.
- 47 **“self-tutored course”:** RBF, “Influences,” 12.
- 48 **costume ball:** RBF, “The Bear Island Story,” Series 7, B6-F14, 20.
- 48 **“Fuller now appreciates”:** E. W. Atkinson to Byron Hurlbut, September 25, 1914, Harvard file.
- 48 **check the dictionary:** RBF, in *Our Harvard*, ed. Lant, 13–14.
- 48 **“pretty bad on the whole”:** Note on report by E. Bernbaum, Harvard file.
- 49 **“I do not believe”:** E. A. Cottrell, report, January 19, 1915, Harvard file.
- 49 **“He . . . seems to make little effort”:** W. C. Heilman, report, January 20, 1915, Harvard file.
- 49 **“It hardly seems”:** Henry A. Yeomans to RBF, January 22, 1915, Harvard file.

- 49 “lack of sustained interest”: RBF, “Influences,” 13.
 49 “high scholastic grades”: RBF, “Later Development of My Work,” in *BFR*, 75.
 49 “anguish and shame”: RBF, “Influences,” 13.
 50 “Dear Dean Yeoman”: RBF to Henry A. Yeomans, undated (1915), Harvard file.

TWO: IN LOVE AND WAR

- 51 “Life and Universe”: RBF with Applewhite, *Synergetics*, 40.
 51 “beef lugger”: RBF, “Memorandum of Activities,” Series 4, B6-F6.
 51 “They were sure”: RBF, “What It Was Like to Grow Up in the Boston Area,” May 1, 1979, Series 1, B2-F2, 4.
 52 “It is where almost everyone”: Arthur Meeker to William Hazard, February 2, 1915, B1-V1.
 52 Germans in the market “exulted”: RBF to J. Bryan III, July 1, 1939, B29-V46.
 52 “an unusually ambitious”: J. C. Leddy to Auditors Headquarters, May 22, 1915, B1-V1.
 52 “big men”: Wolcott Fuller to RBF, undated (1915), B1-V1.
 52 “ankle-length”: Hatch, 41.
 52 “best girl”: Ibid.
 53 “by being the dumbest, gloomiest”: RBF to Kenneth Phillips, October 20, 1915, B43-F13.
 53 “a semi-invalid”: Hatch, 42.
 53 Packer Collegiate Institute: Educational information from “Record of Direct Parentage of Allegra Fuller,” Series 1, B3-F5.
 53 illustrator of children’s books: Rumwell, *Time* profile notes, Take 5, December 26, 1963, B126-F4. AHF later worked with Allegra on the illustrations for an unpublished children’s book, *The Proud Shirtfront*, with text by Christopher Morley (correspondence in B39-V63).
 54 “casting out nines”: RBF with Applewhite, *Synergetics*, 765.
 54 trial balance: RBF, “Trial Balance Inventory,” in *SD*, 19011.
 54 “She made it perfectly clear”: Hatch, 43.
 54 “You can come”: AHF to RBF, undated (1915), B1-V2.
 54 “You *are* the wife”: RBF to AHF, December 1, 1915, B45-F1.
 55 Mark Twain: Hatch, 46.
 55 “a bribe or a lever”: RBF, *EIK*, session 12.
 55 “to make the girl feel good”: Ibid.
 55 “a little story”: RBF to AHF, January 9, 1916, B45-F1.
 55 “the most wonderful girl”: Ibid.
 55 “Gracious God”: Ibid., January 23, 1916, B45-F2.

- 55 “good news for us”: AHF to RBF, “Thursday afternoon” (January 13, 1916), B1-V2.
- 56 “I wouldn’t even like you”: Ibid., “Thursday a.m.” (1916), B1-V2.
- 56 “sort of dismissed”: Hatch, 46.
- 56 “Oh, I think he’s *very* attractive”: AHF to RBF, “Easter 1916” (April 23, 1916), B1-V2.
- 56 “the Butcher Boy”: Hatch, 44.
- 56 arranged to meet “unexpectedly”: AHF to RBF, May 23, 1916, B1-V2.
- 56 “irresponsible, thoughtless, and selfish”: Hatch, 47.
- 57 “small stock”: RBF to William Hazard, June 16, 1919, B8-V16.
- 57 **Plattsburg military camp**: In contemporary sources, the name of both the town and the camp is generally spelled without the *h* at the end.
- 57 “I’m so sick of listening”: RBF to William Hazard, May 9, 1916, B1-V2.
- 57 “We lay there”: RBF to AHF, July 13, 1916, B43-F4.
- 57 “the war bride”: AHF to RBF, July 6, 1916, B2-V3.
- 57 “a sour old fool”: RBF to AHF, July 14, 1916, B43-F4.
- 58 “so she would not get”: Ibid., July 23, 1916, B43-F8.
- 58 “I have taken them to supper”: Ibid., July 25, 1916, B43-F11.
- 58 “Did you really think”: AHF to RBF, “Wednesday a.m.” (July 26, 1916), B2-V3.
- 58 “Lady Anne”: Ibid., “Thursday before dinner” (July 20, 1916), B2-V3.
- 58 **Beaux Arts Ball**: Hatch, 49. Photographs of RBF and AHF in costume for the ball appear in B3-V6 and in the “Early Photos” section of Sidney Rosen, *Wizard of the Dome: R. Buckminster Fuller, Designer for the Future* (Boston: Little, Brown, 1969).
- 58 “with a suitcase of grape juice”: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 58 “an old Owl Club man”: RBF to AHF, April 4, 1917, B43-F15.
- 59 “a good sport”: Ibid., April 15, 1917, B47-F9.
- 59 “The doctor looked at my eyes”: RBF to Caroline Fuller, April 21, 1917, B3-V6.
- 59 “the State of Maine Navy”: Hatch, 51.
- 59 **Machias Bay**: RBF, log for *Wego*, June 21, 1917, B6-V11.
- 59 “German submarines”: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 59 **At two in the morning**: RBF, “The Bear Island Story,” Series 7, B6-F14, 21.
- 60 **in the afternoon**: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 60 “secret service work”: RBF to AHF, July 13, 1920, B45-F6.
- 60 “knew all about”: Ibid.
- 60 “I have never been”: Wolcott Fuller to RBF, August 8, 1918, B8-V15.
- 60 **refueled at Machiasport**: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 60 “It was not until after the war”: RBF, “The Bear Island Story,” Series 7, B6-F14, 21.

- 60 fishing shack: "Hidden Explosive Shakes Wide Area on Maine Coast," *New York Times*, October 16, 1916, 1.
- 61 "Von Papen will join us": "The Eagle's Eye," *Photoplay*, August 1918, 100.
- 61 "a story of thrilling": Advertisement for *The Eagle's Eye in Dramatic Mirror of Motion Pictures and the Stage*, January 26, 1918, 23.
- 61 it was "ridiculous": AHF to RBF, "Sunday" (May 6, 1917), B4-V7.
- 61 "on the verge": Ibid., "Thursday night" (June 7, 1917), B4-V8.
- 61 "I wish I was dead": Ibid., "Friday night" (June 22, 1917), B4-V8.
- 61 "It must be quite something": Hatch, 55.
- 62 "the lieutenants of George Washington's day": "Hewlett Wedding," *Brooklyn (NY) Daily Eagle*, July 15, 1917, 15.
- 62 covered in crumbs: AMS, 31.
- 62 stories about Spongee: RBF to AHF, October 12, 1917, B43-F13, and Lord, *Pilot for Spaceship Earth*, 51.
- 62 a Fox Film Corporation silent epic: 4DT, 91, and "Queen of the Seas," *Baltimore Sun*, November 11, 1917, pt. 2, 6.
- 62 "less inspiring": RBF, "The Bear Island Story," Series 7, B6-F14, 33.
- 63 "the best in the fleet": RBF to AHF, October 17, 1917, B43-F13.
- 63 "by beautiful girls": Nels Nelson, "Who Was That Masked Man?," *People Paper People*, *Philadelphia Daily News*, October 25, 1974, 2.
- 63 "struggling designers": RBF, *Nine Chains*, 294.
- 64 "awfully naughty": AHF to RBF, "Very early Sunday morning" (February 10, 1918), B6-V12.
- 64 range tests: Lee de Forest, *Father of Radio: The Autobiography of Lee de Forest* (Chicago: Wilcox & Follett, 1950), 342-43.
- 64 "established the first": RBF, "Influences," 15.
- 64 transmissions from ships: *Introduction to Aviation* (Montgomery, AL: Air University Headquarters Air Force ROTC, 1953), 118.
- 64 "fantastically absurd number": RBF, "Conceptuality of Fundamental Structures," in *Structure in Art and in Science*, ed. György Kepes (New York: George Braziller, 1965), 71.
- 64 "I said to myself": AMS, 28.
- 65 he played with Spaghetti: RBF to Evelyn Schwartz, May 8, 1931, B24-V39.
- 65 refilling his water tanks: Hatch, 60-61.
- 65 "all cut up": RBF to AHF, February 13, 1918, B47-F12.
- 65 "air pocket": "Naval Flyer Killed," *Baltimore Sun*, March 14, 1918, 2.
- 65 "I invented and had installed": AMS, 27.
- 65 "a seaplane rescue mast": RBF, "Influences," 16.
- 66 "hundreds of pilots' lives": Sieden, *Buckminster Fuller's Universe*, 51.
- 66 "an aviator a day": RBF, *EIK*, session 9.
- 66 only two fatalities: One was Leslie M. MacNaughton; the other was Calvin Crawley, who died after his plane collided with a pile while landing

- (“Calvin Crawley of St. Louis is Killed,” *St. Louis Globe-Democrat*, May 18, 1918, 1). No other air fatalities at Hampton Roads for this period appear in *Officers and Enlisted Men of the United States Navy Who Lost Their Lives During the World War, from April 6, 1917, to November 11, 1918* (US Government Printing Office, 1920).
- 66 “won me an appointment”: RBF, “Influences,” 16.
- 66 carved a wooden map: RBF to Patrick Bellinger, April 3, 1943, B55-F2.
- 66 flew an airplane: RBF, “Buckminster Fuller Chronofile,” in *BFR*, 13.
- 66 “jet stilts”: RBF, “Influences,” 18.
- 66 “navigation, ballistics”: RBF, in *Our Harvard*, ed. Lant, 16.
- 66 “Our plan has been to equip”: Edward W. Eberle, “General Review of Naval Academy Activities During Year 1917–1918,” United States Naval Academy. Provided to the author by Jennifer A. Bryan.
- 66 “very comprehensive men”: RBF, *Education Automation*, 66.
- 67 “horrible baby”: AHF to RBF, “Tuesday” (June 25, 1918), B7-V14.
- 67 “to have to sacrifice everything”: Ibid.
- 67 “Please try to get used”: RBF to AHF, June 27, 1918, B45-F4.
- 67 “It doesn’t matter how sick”: AHF to RBF, “Tuesday” (July 2, 1918), B7-V14.
- 67 navy ensign: Although some sources state that RBF reached the rank of lieutenant, junior grade, he was an ensign at the time of his resignation from the navy, and his request to enroll as a junior lieutenant in the Naval Reserve was granted only in 1921. See correspondence in B10-V20.
- 67 “the finest cream”: RBF, *EIK*, session 4.
- 68 “to always remember”: D. K. Romig, *The United States Ship Great Northern* (Brooklyn: Eagle, 1919), 70.
- 68 named after the queen: Rumwell, *Time* profile notes, Take 5, December 26, 1963, B126-F4.
- 68 “infantile paralysis”: RBF to Arthur Meeker, April 29, 1921, B9-V18.
- 68 medical records: Edwin T. Wyman to RBF, July 15, 1922, B11-V22.
- 69 “large teamwork maintenance”: RBF, “Influences,” 15.
- 69 “The human voice”: Ibid., 16.
- 69 “I was there”: AMS, 30.
- 69 Transatlantic radio messages: Joseph Nathan Kane, *Famous First Facts* (New York: H. W. Wilson, 1964), 505.
- 69 “the New Brunswick radiophone”: Harold H. Beverage, “Duplex Radiophone Receiver on USS *George Washington*,” *General Electric Review*, October 1920, 810–11.
- 69 “an enormous metallurgical war”: RBF, *EIK*, session 3.
- 70 “that little Alexandra”: Caroline Fuller to RBF, August 15, 1919, B8-V16.
- 70 Romany Marie: Hatch, 69. RBF stated elsewhere that his first meeting with Romany Marie took place in the company of Vincent Astor in 1919 (Robert Schulman, *Romany Marie: The Queen of Greenwich Village*

- [Louisville, KY: Butler Books, 2006], 104), which conflated two different visits.
- 70 ***Beyond the Horizon***: Eugene O’Neill, *Selected Letters of Eugene O’Neill*, ed. Travis Bogard and Jackson R. Bryer (New York: Limelight Editions, 1994), 102.
- 70 **“bigger work”**: William Hazard to Arthur Meeker, telegram, September 15, 1919, B8-V16.
- 71 **“I have not told Anne”**: RBF to William Hazard, January 16, 1920, B9-V17.
- 71 **Anne’s brother Willets**: “Hewlett” (death notice), *Brooklyn Life*, January 17, 1920.
- 71 **acute kidney disease**: “James Monroe Hewlett,” <http://jmh.wikifoundry.com/page/Timeline> (accessed April 2021).
- 71 **“a comfort and joy”**: James Hewlett to AHF, July 12, 1920, B9-V17.
- 71 **“I seem just to go around”**: AHF to RBF, “Saturday night” (1920), B9-V17.
- 71 **“Dearest little girl”**: RBF to AHF, July 20, 1920, B45-F7.
- 71 **“We discovered”**: Richard J. Brenneman, *Fuller’s Earth: A Day with Buckminster Fuller and the Kids* (New York: New Press, 2009), 98–99.
- 72 **“one of the most material”**: 4DT, 2.
- 72 **“I thought of how”**: AHF to RBF, August 1, 1921, B10-V19.
- 72 **“My heart certainly jumped”**: RBF to AHF, January 6, 1922, B11-V21.
- 73 **“tearing up and down the deck”**: AHF to RBF, “Friday” (January 13, 1922), B11-V21.
- 73 **with an “unspeakable”**: Ibid., “Monday” (January 16, 1922), B11-V21.
- 73 **“a mixture of colored”**: Ibid., “Friday” (January 1922), B11-V21.
- 73 **“Isn’t that lovely”**: Ibid.
- 73 **“As you know”**: RBF to AHF, January 24, 1922, B11-V21.
- 73 **“big brother”**: Kelly-Springfield Motor Trucks catalog, B12-V23.
- 74 **“When I’m bigger”**: AHF to RBF, “Wednesday night” (March 1, 1922), B11-V21.
- 74 **“I am so happy”**: RBF to AHF, March 10, 1922, B11-V21.
- 74 **“I don’t mind your drinking”**: AHF to RBF, “Wednesday night” (March 1, 1922), B11-V21.
- 74 **Police Reserve Aviation Division**: “The New York City police commissioner [was made] an honorary officer in the Naval Reserve, in return for which he made all the captains honorary police officers” (Hatch, 73). In fact, the Police Reserve Aviation Division had been officially mustered into the Naval Reserve in its entirety (“Police Air Reserve Is Now Part of Navy,” *New York Times*, May 6, 1922, 14). RBF applied for membership in the Police Reserve the following week (John F. Dwyer to RBF, May 10, 1922, B11-V22).
- 74 **a display of “dishonesty”**: RBF to Charles Young and Edward McDonnell, April 5, 1922, B12-V23.

- 74 “bright young man”: RBF, *EIK*, session 10.
- 74 “National users”: Charles Young to James M. McCarthy, June 6, 1922, B12-V23.
- 75 “Eddie gave me a job”: RBF, *Inventions*, 1.
- 75 references to the “termination”: RBF, “Memorandum of Activities,” Series 4, B6-F6.
- 75 “a ne’er-do-well”: Hatch, 72.
- 75 started to drink: Ibid.
- 76 “Daddy will be crazy”: AHF to RBF, “Tuesday” (August 1, 1922), B11-V22.
- 76 “our mutual interest”: RBF to Vincent Astor, August 28, 1928, in *4DT*, 88.
- 76 “the efficiency”: “Uses Astor Seaplane to Attend Weddings,” *New York Times*, September 29, 1922, 7.
- 76 “after they found themselves”: “Flies to Weddings,” unidentified clipping, B11-V22.
- 76 “the first man ever”: Schulman, *Romany Marie*, 104.
- 76 failed rescue: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 76 brought along an oar: Lord, *Pilot for Spaceship Earth*, 38.
- 76 wedding in October: The chronology in *Your Private Sky*, ed. Krausse and Lichtenstein, 27, indicates that RBF took classes during this period at the Harvard Graduate School of Business Administration. Course materials appear in B12-V23, but no other evidence has been found for his enrollment.
- 76 “big and cunning”: Susie E. Vooris to AHF, November 14, 1922, B45-F11.
- 76 World Series: Hatch, 73.
- 77 reunited with Astor: Hatch places this visit before the seaplane episode (74), but RBF dated it to Astor’s return from his trip overseas (Schulman, *Romany Marie*, 105).
- 77 waved at games: RBF, narration in Mark Stouffer, teleplay for *What One Man Can Do*, B496-F7, 31.
- 77 “Daddy, will you bring me a cane?”: Hatch, 76.
- 77 “Alexandra is very sick”: Ibid. A similar account appears in RBF to J. Bryan III, July 1, 1939, B29-V46.
- 77 “contiguous displacements”: RBF, “Influences,” 22.
- 77 “the messy world”: RBF, “Designing a New Industry,” in *BFR*, 159.
- 77 “Daddy, did you bring me my cane?”: Hatch, 76.

THREE: STOCKADE

- 78 “It is a basic principle”: RBF with Applewhite, *Synergetics*, 114.
- 78 backdated his sketches: *Your Private Sky*, ed. Krausse and Lichtenstein, 85.
- 78 “Mr. Hewlett was the first man”: Hatch, 81.

- 79 “I believe truly”: AHF to “Ned,” undated (1922), B45-F12.
- 79 “The greatest poem ever known”: *Life*, April 7, 1921, 494.
- 79 “I was never”: Hatch, 82–83.
- 80 **Grand Central Station**: RBF to Geoffrey T. Hellman, September 21, 1944, B59-F2.
- 80 **unconventional background**: 4DT, 14.
- 81 **Vincent Astor**: RBF to Vincent Astor, August 28, 1928, in 4DT, 88.
- 81 “He didn’t seem to know”: RBF, “Later Development of My Work,” in *BFR*, 77.
- 82 “for concrete stanchions”: “State Charters Granted Long Island Corporations,” *Brooklyn (NY) Standard Union*, January 28, 1923, sec. 2, 9.
- 82 “seaweed from the Sargasso Sea”: RBF, *EIK*, session 10.
- 82 “the way you’d pull spaghetti”: Ibid.
- 83 **felt manufacturer**: Ibid.
- 83 **Scott H. Perky**: Hatch, 80.
- 83 “If he was enthusiastic”: RBF, “Later Development of My Work,” 80.
- 83 **caught fire**: “Fire at Summit Destroys Building Materials Plant,” *Courier-News* (Bridgewater, NJ), September 1, 1923.
- 84 **wooden staves**: RBF to Kenneth Snelson, March 1, 1980, Series 8, B184-F4.
- 84 **carbon black powder**: RBF, *EIK*, session 7.
- 85 “I would have to”: Ibid.
- 85 **showing a profit**: “New Fibre Brick Company Issues First Statement,” *Orlando Morning Sentinel*, January 6, 1926, 15. For a failed attempt to establish an operation in Florida, see “Building Blocks Made from Palmetto Scrubs New Florida Industry,” *Tampa Tribune*, October 14, 1925, 1-C.
- 85 “perhaps in speakeasies”: Hatch, 83.
- 85 **The Great Gatsby**: Sarah Churchwell, “In Search of Bunny Burgess, or Down the Rabbit Hole: Anecdotes, Secret Histories, and *The Great Gatsby*,” *Cambridge Quarterly* 46, no. 2 (June 2017): 140–61.
- 86 “There was absolutely no momentum”: RBF, *EIK*, session 7.
- 86 “pretty much the center”: RBF to Alfred and Pauline Fuller, January 9, 1928, quoted in Lorange, 28.
- 87 **his brother-in-law had been “soft”**: RBF to AHF, August 17, 1926, B46-F1.
- 87 “The Chicago crowd”: Ibid.
- 87 “a funny little Dutchman”: Ibid., September 28, 1926, B46-F3.
- 87 **Farley Hopkins**: Biographical information from “Von Maur-Hopkins Engagement Announced,” *Daily Times* (Davenport, IA), May 20, 1920. Additional background provided by Lionel Wolberger, email to author, January 15, 2021.
- 88 “that darned mad rush”: RBF to AHF, July 9, 1926, B45-F16.
- 88 “bulging tummy”: Ibid., September 28, 1926, B46-F3.

- 88 "I still ride high": Ibid., September 21, 1926, B46-F2.
- 88 "over a thousand": Hatch, 84.
- 88 known as the Stockade: "Den Burned by Vigilantes," *Chicago Tribune*, May 31, 1926.
- 88 "They seemed to be the only place": Hatch, 84.
- 88 one speakeasy: It may have been the Roadside Home, which was owned by Capone (Mezz Mezzrow and Bernard Wolfe, *Really the Blues* [New York: New York Review Books, 2016], 71–73).
- 88 "not a very attractive man": Hatch, 84.
- 88 "the latest machine gun gang murders": RBF to AHF, October 17, 1926, B46-F3.
- 88 from the trolley: AMS, 34.
- 88 "contacts with all sorts": RBF to William Delano, undated (1932), B26-V42.
- 89 "the warmest house": Lorange, 34.
- 89 construction seemed "cheap": RBF to AHF, September 22, 1926, B46-F2.
- 89 "a bitter fight": Hatch, 86.
- 89 "I am going to have": RBF to AHF, November 14, 1926, B46-F4.
- 89 "the elevation of materials": RBF to Kirkwood H. Donavin, December 30, 1926, B15-V27.
- 90 "a horrid, cheapish way": RBF to AHF, January 5, 1927, B46-F4.
- 90 "I don't think it would be safe": Ibid.
- 90 dirty song: Hatch, 86.
- 90 "tricky methods": James Hewlett to RBF, undated (1927), B15-V28.
- 90 "Being informed": RBF to Stockade board, February 10, 1927, B17-V32.
- 90 Anne happened to be in town: RBF to AHF, April 14, 1927 (misdated 1926), B45-F16.
- 91 "the only times": AHF to RBF, "Monday" (May 2, 1927), B15-V28.
- 91 "wantonly approached": *4DT*, 5.
- 91 fourteen thousand attendees: RBF, "Designing a New Industry," in *BFR*, 156.
- 91 "due to any derogatory remarks": RBF to William J. McCartney, February 16, 1927, B15-V28.
- 91 "keep your temper": Andrew King to RBF, telegram, February 17, 1927, B15-V28.
- 91 "Things are black": RBF to AHF, March 4, 1927, B46-F4.
- 92 "I pretended to myself": Ibid., March 8, 1927, B46-F5.
- 92 "misstatements or overstatements": Frances Freeman to RBF, March 14, 1927, quoted in Lorange, 42.
- 92 Hopkins was a "skunk": AHF to RBF, July 13, 1927, B16-V29.
- 92 "I could just stay": Ibid., "Tuesday" (May 3, 1927), B15-V28.
- 92 "Isabel [Burton]": Ibid., "Monday night" (May 16, 1927), B16-V29.

- 92 “Darling, I am going”: RBF to AHF, March 13, 1927, B46-F5.
- 93 “if he brought along a board of directors”: *4DT*, 126.
- 93 “It would be absolutely ruinous”: RBF to AHF, July 25, 1927, B46-F6.
- 93 “I dressed”: AHF, diary entry, August 7, 1927, in Lorange, “BV,” 296. The original is archived in B16-V30.
- 93 Virginia Hotel: Lorange, 48–51.
- 93 Raymond Hood: Hatch, 49.
- 93 “I don’t believe business”: RBF to AHF, July 18, 1927, B46-F6.
- 94 “the big grab”: RBF to Robert McAllister Lloyd, quoted in Lorange, 44.
- 94 “a bad man”: Hatch, 86.
- 94 “The thing that hurt”: RBF to Robert McAllister Lloyd, quoted in Lorange, 44–45.
- 94 Lord Byron: Hatch, 86.
- 94 “happy girl”: RBF, *EIK*, session 12.
- 94 Nettie Bonenkamp: *4DT*, 130.
- 95 would be “impersonal”: RBF to Robert McAllister Lloyd, quoted in Lorange, 44.
- 95 loaned \$700 to a sales manager: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 95 “a colored taxi driver”: *Ibid*.
- 95 150 homes: RBF, *Nine Chains*, 37. In later accounts, RBF increased the number to 240 (RBF, “Influences,” 24).
- 95 November 20, 1927: While the evidence strongly points to this date, there is another possible candidate. In an autobiographical letter to the journalist Joseph “J.” Bryan III, RBF said that his mugging on Wabash Avenue took place after a friend invited him to dinner at the Blackstone Hotel “within a few hours of this realization” at the lake (RBF to J. Bryan III, July 1, 1939, B29-V46). In his growth chart for Allegra, RBF dated this incident to October 13, 1927 (B16-V30). Given the lack of any change in his behavior in October, as opposed to the steps that he took in November, it seems likely that he conflated the two events. Lionel Wolberger suggests that RBF frequently walked by the lake to think, which opens up the possibility that his account incorporates details from multiple dates (Wolberger, interviewed by author, December 23, 2020).
- 95 “Cloudy drizzly day”: AHF, diary entry, November 20, 1927, 296–97. AHF wrote “Nellie,” but the name “Nettie” appears in *4DT*, 130, and a household budget in B16-V30.
- 95 the Harvard football squad: RBF, growth chart for Allegra, November 20, 1927, B16-V30.
- 95 Fuller attended a Thanksgiving service: “Local Programs,” *Chicago Tribune*, November 20, 1927, pt. 7, 12. The following week, RBF went to a service at St. Chrysostom’s Episcopal Church, which he continued to attend throughout the period that followed.

- 95 **Thanksgiving 1831:** An account of this experience appears in Braun, *Margaret Fuller and Goethe*, 34–35, which RBF claimed to have read in 1927 (Rumwell, *Time* profile notes, Take 4, December 24, 1963, B126-F4).
- 96 “I had adequate courage”: RBF and Dil, *Humans in Universe*, 95.
- 96 “greater intellect”: RBF, “Later Development of My Work,” in *BFR*, 78.
- 96 “Do I know best?": Ibid.
- 96 “You do not have the right”: Ibid., 79.
- 96 “work out his fate”: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 96 arrived at an “egocide”: RBF, “Guinea Pig B,” in *Inventions*, xxviii.
- 97 “a miniature picture”: “Visit the Ford Industrial Exposition,” advertisement, *Chicago Tribune*, January 29, 1928, 21.
- 97 “the Ford method”: Ibid.
- 97 “marvelous exhibition”: RBF, diary entry, January 30, 1928, in Lorange, “BV,” 304.
- 97 “to kill him”: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 97 “I found myself”: AMS, 35.
- 98 “From now on, you need never”: Ibid.
- 98 “From now on, write down everything”: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 98 “much in need of mental diversion”: RBF, diary entry, February 1, 1928, 305.
- 98 “After much philosophical thought”: Ibid.
- 98 “Bucky, you are to be”: Barbara Marx Hubbard, “The Path of Social Evolution,” in *Anthology for the Millennium*, ed. Thomas T. K. Zung (Carbondale: Southern Illinois University Press, 2014), 141.
- 98 “all that my mother would like”: Applewhite, *Cosmic Fishing*, 153.

PART TWO: THE DYMAXION AGE

- 99 “You cannot get out”: RBF with Applewhite, *Synergetics*, 85.

FOUR: THE FOURTH DIMENSION

- 101 “We start playing”: RBF with Applewhite, *Synergetics*, 296.
- 101 “I scarcely spoke”: AMS, 39.
- 101 “the voluntary experiments”: Susan Sontag, *Styles of Radical Will* (New York: Farrar, Straus & Giroux, 1969), 20.
- 101 “He did not seal up his mouth”: Hatch, 92.
- 101 “Anne made all”: Ibid.
- 102 *How to Work Wonders*: North American Institute form letter, B17-V32.
- 102 “blind date with principle”: RBF, “Influences,” 24.

- 102 **On November 21:** Many dates in this section are based on the RBF and AHF diary in B16-V30, which is reprinted in Lorange, “BV,” 296–312.
- 102 **“I felt awfully depressed”:** AHF, diary entry, December 5, 1927, in “BV,” 298.
- 102 **new building:** Lorange, 51.
- 102 **“a nice red apple”:** Hatch, 91.
- 103 **“slender single supports”:** RBF to J. Bryan III, July 1, 1939, B29-V46.
- 103 **“like a man with ague”:** Ibid.
- 103 **“in which each house”:** RBF and Robert W. Marks, *The Dymaxion World of Buckminster Fuller* (Garden City, NY: Anchor Books, 1973), 13. The 1960 edition (New York: Reinhold) was credited to Marks alone. Referred to hereafter as Marks.
- 104 **“the house of his childhood”:** RBF to J. Bryan III, July 1, 1939, B29-V46.
- 104 **“startled at coincidence”:** RBF, diary entry, January 30, 1928, in “BV,” 303.
- 104 **“The lesson of the airplane”:** Le Corbusier, *Towards a New Architecture*, trans. Frederick Etchells (1927; New York: Dover, 1986), 4.
- 105 **“the majesty of solutions”:** Ibid., 97.
- 105 **“A problem adequately stated”:** RBF, “Universal Architecture,” *T-Square*, February 1932, 41.
- 105 **“like a soap bubble”:** Le Corbusier, *Towards a New Architecture*, 181.
- 105 **“parallel table”:** Ibid., 271.
- 105 **“misses main philosophy”:** RBF, diary entry, January 30, 1928, in “BV,” 303.
- 105 **“the spiritual and abstract”:** *4DT*, 23.
- 105 **“the philosophy”:** RBF, diary entry, February 23, 1928, in “BV,” 308.
- 106 **“garbled facts”:** RBF to James Hewlett, telegram, March 28, 1928, B18-V33.
- 106 **cease operations:** Print references to Stockade cease almost entirely after 1928. According to the *Index of Trade-marks Issued from the United States Patent Office*, a trademark was approved in 1930 for the Stockade Corporation, which issued a booklet that year for an acoustical tile called Soundex (*Building Age*, vol. 52, 104). By 1938 the Soundex brand had been acquired by Williams & Co. of Chicago (“Notice of a Ruling by the Building Inspector,” *Hartford Courant*, April 5, 1939, 21), although RBF later identified Celotex as the buyer (RBF, *EIK*, session 7). He often stated elsewhere that Celotex acquired Stockade itself at the time of his departure, which is contradicted by the available sources (Lorange, 62).
- 106 **“as a matter of integrity”:** RBF to J. Bryan III, July 1, 1939, B29-V46.
- 106 **attorney’s advice:** RBF, *Inventions*, 11.
- 106 **Moscow Palace of Labor:** Undated clipping from *L’Architecture Vivante*, B18-V33.
- 106 **Bodo and Heinz Rasch:** Martin Pawley, *Buckminster Fuller* (London: Grafton / HarperCollins, 1992), 37–39.

- 107 “The living abodes”: RBF, “Cosmopolitan Homes,” in “BV,” 322.
 107 Fuller spoke of “debunking”: Ibid., 330.
 107 “one best way”: Ibid., 331.
 107 “It is the subjects”: RBF, “Lightful Houses,” in “BV,” 334.
 108 “As time is saved”: Ibid., 385.
 108 “theory of spheres”: RBF, diary entry, February 1, 1928, in “BV,” 305.
 108 “All matter”: RBF, “Lightful Houses,” in “BV,” 373.
 108 “Figure out what they are talking”: Ibid., 396.
 108 “the demand be upon us”: Ibid., 364.
 108 “the application of time”: Ibid., 341.
 108 “the greatest time saver”: Ibid., 360.
 108 the coded pun of “4D”: Wong, 34.
 109 “with unexpected enthusiasm”: RBF to Homer L. Dodge, April 24, 1944, B58-F2.
 109 lack of faith: RBF to AHF, July 31, 1932, B47-F1.
 110 “cycles of research”: *4DT*, 24.
 110 “circular progression”: Ibid., 15.
 110 “only in hotels”: Ibid., 21.
 110 “ironing drudgery”: Ibid.
 110 “The trouble is the shirts”: William Marlin, “The Evolution and Impact of a Teacher,” *Architectural Forum*, January 1972, 71.
 110 “The operator of all this”: *4DT*, 33.
 110 “Philosophy to be effective”: Ibid., 6.
 110 “This chunky little fat boy”: Marlin, “Evolution and Impact of a Teacher,” 68.
 110 “was greeted”: RBF to Henry W. Tomlinson, May 21, 1928, in *4DT*, 43.
 111 “complacently befuddled”: RBF, notes on AIA convention, B18-V33.
 111 “peas-in-a-pod-like”: Marlin, “Evolution and Impact of a Teacher,” 68.
 111 “Local characteristics”: “Cities Becoming ‘Peas of One Pod,’ Architects Warn,” *St. Louis Star*, May 17, 1928, 11.
 111 **Claude Bragdon**: For the possible influence of Bragdon’s ornamental designs on RBF’s geometry, see Jonathan Massey, “Necessary Beauty,” in *New Views on R. Buckminster Fuller*, ed. Hsiao-Yun Chu and Robert G. Trujillo (Stanford, CA: Stanford University Press, 2009), 114–23. Bragdon’s work also introduced him to the writings of P. D. Ouspensky (*4DT*, 46), an associate of Gurdjieff, whose description of the spiral paths of the earth and moon may have informed RBF’s characterization of the system as “spiro-orbital” (Ouspensky, *A New Model of the Universe* [London: Routledge & Kegan Paul, 1960], 449–50, and RBF with Applewhite, *Synergetics* 2, 452–53).
 111 **controlling interest**: RBF to James Hewlett, June 8, 1928, in *4DT*, 51–54.
 111 “gold mine”: RBF to Caroline Fuller, May 11, 1928, in *4DT*, 43.

- 111 “over my head”: Caroline Fuller to RBF, May 23, 1928, in *4DT*, 48.
- 111 “I honestly cannot”: Wolcott Fuller to RBF, August 6, 1928, in *4DT*, 77.
- 111 “That was the only time”: Hatch, 93.
- 112 experiments with sleep: Ibid., 94, and RBF to J. Bryan III, July 1, 1939, B29-V46. See also “Science: Dymaxion Sleep,” *Time*, October 11, 1943, 27.
- 112 Leland Atwood: RBF to Paul Nelson, August 10, 1928, in *4DT*, 86. For the allegation that RBF copied elements of the Dymaxion House from a 1926 design by Atwood, see Robert Boyce, *Keck and Keck* (New York: Princeton Architectural Press, 1993), 47.
- 112 “for his exclusive ownership”: *4DT*, 94.
- 112 delivered by an airship: Marks, 74–75.
- 112 a “chronofile”: *4DT*, 39.
- 112 required for copyright: Lorange, 153.
- 112 vertical zeppelins: In 1934 RBF met the zeppelin designer Karl Arnstein, who reportedly encouraged his work on the Dymaxion Car (RBF to J. Bryan III, July 1, 1939, B29-V46). In his list of references for *4DT*, he included an article on an airship designed by a team led by the engineer Barnes Wallis (Wong, 185n136). Wallis developed a “geodetic” construction method, which RBF described as “a geodesic spiral-counter-spiral framing” (RBF to Kenneth Snelson, March 1, 1980, Series 8, B184-F4), but there is no evidence that it influenced the development of the geodesic dome.
- 113 “auto-airplane”: *4DT*, 107.
- 113 “the forgotten graves”: Ibid., 133.
- 114 “the greatest letter”: RBF to George N. Buffington, August 31, 1928, in *4DT*, 120.
- 114 “4D is my own creation”: Ibid., 135.
- 114 two structural rings: Michael John Gorman, *Buckminster Fuller: Designing for Mobility* (Milan, It.: Skira Editore, 2005), 41.
- 114 “We might arrange”: RBF to Jean Toomer, June 15, 1928, in *4DT*, 70.
- 114 “I have an increasing interest”: Toomer to RBF, June 17, 1928, in *4DT*, 70.
- 115 “I did not know”: RBF, *Inventions*, 11.
- 115 “to prevent their being exploited”: RBF, *Nine Chains*, 348.
- 115 six tons and cost \$3,000: Lorange, 188.
- 115 Rudolph Weisenborn: RBF, “Dymaxion House Exhibitions and Lectures,” in Lorange, “BV,” 417.
- 115 Ray Schaeffer: Leigh White, “Buck Fuller and the Dymaxion World,” *Saturday Evening Post*, October 14, 1944, reprinted in *Your Private Sky*, ed. Krausse and Lichtenstein, 132.
- 115 long-standing program: Suzanne Strum, *The Ideal of Total Environmental Control: Knud Lönberg-Holm, Buckminster Fuller, and the SSA* (London: Routledge, 2017), 87.

- 115 coined the term *radio*: RBF, *EIK*, session 12.
- 115 *dynamism, maximum*: Marks, 21.
- 116 “the dynamically balanced home”: RBF, “Lightful Houses,” in “BV,” 364.
- 116 “It seemed at first mouthing”: RBF to Peggy LeBoutillier, December 21, 1936, B37-V57.
- 116 defined retroactively: The *Oxford English Dictionary* consulted RBF years later for its entry on *dymaxion*: “Yielding the greatest possible efficiency in terms of the available technology, ‘doing the most with the least’” (2nd Ed., Vol. V, 6).
- 116 Howard Fisher and George Fred Keck: RBF lecture list, B49-F6.
- 116 “What’s this?” RBF interview in Harold Drake, “Alfred Korzybski and Buckminster Fuller: A Study in Environmental Theories” (doctoral thesis, Southern Illinois University Press, 1972), 168.
- 116 “many famous Harvard professors”: RBF, in *Our Harvard*, ed. Lant, 20.
- 117 “I learned vast amounts”: Nicholas Fox Weber, *Patron Saints: Five Rebels Who Opened America to a New Art, 1928–1943* (New Haven, CT: Yale University Press, 1995), 68.
- 117 “absolutely comfortable clothes”: AMS, 59.
- 117 “I showed up and rudely announced”: Ibid.
- 117 “bank clerk’s clothing”: Ibid.
- 117 Lewis Mumford for Scribner: *Your Private Sky*, ed. Krausse and Lichtenstein, 82, and Gorman, *Designing for Mobility*, 49–52.
- 117 “a liar”: RBF, CP, 269.
- 117 sympathetic architects: One was Ely Jacques Kahn, who later commissioned RBF to design a “tension room” to display sculptures by Isamu Noguchi, although it was never realized (*Your Private Sky*, ed. Krausse and Lichtenstein, 29, and Dana Miller, “Thought Patterns: Buckminster Fuller the Scientist-Artist,” in *Buckminster Fuller: Starting with the Universe*, ed. K. Michael Hays and Dana A. Miller [New York: Whitney Museum of American Art, 2008], 26).
- 117 “thinking out loud”: RBF, “The Bear Island Story,” Series 7, B6-F14, 1.
- 118 “different labor-saving things”: AHF to RBF, September 12, 1929, quoted in Lorange, 177.
- 118 “All our troubles”: RBF to AHF, July 31, 1932, B47-F1.
- 118 “It was flight”: Ibid., August 22, 1935, B36-V55.
- 118 Antonio Salemme: Antonio Salemme, interview in *Buckminster Fuller: Thinking Out Loud*.
- 118 “should lend itself to change”: Elizabeth A. T. Smith, “The Comprehensivist: Buckminster Fuller and Contemporary Artists,” in *Starting with the Universe*, 64.
- 119 “If you will give a hand”: Schulman, *Romany Marie*, 106.

- 119 **“official talker”**: Shoji Sadao, *Buckminster Fuller and Isamu Noguchi: Best of Friends* (Long Island City, NY: Isamu Noguchi Foundation and Garden Museum, 2011), 77. Referred to hereafter as Sadao.
- 119 **“a core of people”**: Schulman, *Romany Marie*, 109.
- 119 **“every intellectual in the world”**: Sadao, 77. RBF’s list of visitors to Romany Marie’s appears in Series 8, B89-F7.
- 119 **Theodore Dreiser**: Dreiser expressed polite interest in RBF’s ideas: “It would either require a change in society to accept them, or else, by slow degrees they would change society itself” (Dreiser to RBF, April 28, 1931, B23-V38). RBF said later that he also “may have met” the paranormal researcher Charles Fort through Dreiser (RBF, introduction to Damon Knight, *Charles Fort: Prophet of the Unexplained* [London: Victor Gollancz, 1971], xv), but he stated definitively elsewhere that he had not known Fort (Gene Keyes, in Stewart Brand, *The Last Whole Earth Catalog: Access to Tools* [Menlo Park, CA: Portola Institute, 1971], 312).
- 119 **“always exciting”**: Martha Graham to RBF, January 30, 1964, B125-F8.
- 119 **Salemme’s studio**: “Factory-Made Houses to Hang on Masts,” *Oakland Tribune*, December 8, 1929.
- 119 **Isamu Noguchi**: Much of the material on RBF’s and Noguchi’s early friendship is drawn from David Michaelis, *The Best of Friends: Profiles of Extraordinary Friendships* (New York: William Morrow, 1983), 41–73.
- 120 **study art in Paris**: One of Noguchi’s works from this period, retroactively titled *Abstraction in Almost Discontinuous Tension* (1928), anticipates aspects of tensegrity, but there is no evidence that RBF ever saw it (Isamu Noguchi, *A Sculptor’s World* [London: Thames and Hudson, 1967], 18).
- 120 **show of their work**: Adnan Morshed, *Impossible Heights: Skyscrapers, Flight, and the Master Builder* (Minneapolis: University of Minnesota Press, 2015), 126.
- 120 **“fondly as a period”**: Stewart Brand, afterword to Medard Gabel, *Energy, Earth, and Everyone: A Global Energy Strategy for Spaceship Earth*, with the World Game Laboratory (San Francisco: Straight Arrow Books, 1975), 155.
- 120 **“a fundamental invisibility of the surface”**: RBF, foreword to Noguchi, *Sculptor’s World*, 8. Noguchi slightly qualified this claim: “It may have been Bucky’s influence to make it chrome. But it must have been my volition because it was modeled for that” (Amy Wolf, *On Becoming an Artist: Isamu Noguchi and His Contemporaries, 1922–1960* [Long Island City, NY: Isamu Noguchi Foundation and Garden Museum, 2010], 47).
- 121 **“belong to their respective lands”**: RBF, foreword to Noguchi, *Sculptor’s World*, 7.
- 121 **Kay Halle**: Benjamin Forgey, “Noguchi, Honing His Craft,” *Washington Post*, April 15, 1989.

- 121 “Mr. Fuller”: Michaelis, *Best of Friends*, 56.
- 121 “You can’t be submerged”: Ibid., 57.
- 121 “It was amazing”: Ibid., 52.
- 121 “in love”: Ibid., 69.
- 121 “Neither of us was homosexual”: Ibid., 51.
- 121 Fox Movietone: Lorange, 184–86.
- 121 Phil Nowlan: RBF, *CP*, 262.
- 121 during a snowstorm: Michaelis, *Best of Friends*, 61. Michaelis misdates this trip to 1929.
- 121 “quite sad today”: Hayden Herrera, *Listening to Stone: The Art and Life of Isamu Noguchi* (London: Thames & Hudson, 2015), 92.
- 121 “a spiritual portrait”: Ibid., 83.
- 122 “who that Jap”: Rumwell, *Time* profile notes, Take 5, December 26, 1963, B126-F4.
- 122 made strides: In June RBF proposed a factory tower for the Gillette Corporation (Wong, 77). The company’s founder, King C. Gillette, had published a utopian manifesto in 1894 that anticipated ideas—megastructures, domed gardens, hexagonal layouts—that RBF later explored (King C. Gillette, *The Human Drift* [Boston: New Era, 1894], 84–109).
- 122 declined to attend: Itinerary, May 3, 1930.
- 122 “halfway between a gas tank”: Wong, 55n130.
- 122 “Can you tell me?”: RBF, “Designing a New Industry,” in *BFR*, 169.
- 122 “a dripping rag”: Frank Lloyd Wright, “A Week in New York,” in *Collected Writings*, vol. 2, ed. Bruce Brooks Pfeiffer (New York: Rizzoli, 1992), 356.
- 122 “My young friend”: RBF in Olgivanna Lloyd Wright, *The Shining Brow* (New York: Horizon, 1960), 133.
- 122 “Am to visit Frank Lloyd Wright”: RBF to AHF, April 6, 1930, B46-F12.
- 122 “I know that he will no sooner”: RBF to Paul Nelson, August 17, 1928, in *4DT*, 84.
- 123 Muriel Draper: Schulman, *Romany Marie*, 138.
- 123 dismissed Gurdjieff: Sadao, 82.
- 123 “beautiful expressions”: RBF, “Gurdjieff,” in *SD*, 7115.
- 123 “go to work writing”: Ibid.
- 123 “let Gurdjieff take over”: RBF, “Artist: Histrionics,” in *SD*, 753.
- 123 “the cosmic religious sense”: Albert Einstein, “Religion and Science,” *New York Times Magazine*, November 9, 1930, 1.
- 123 new era in history: RBF, “The Leonardo Type,” in *Earth, Inc.* (Garden City, NY: Anchor Press, 1973), 69.
- 123 On November 12: In a letter to Schwartz dated May 24, 1931, RBF stated that he had known her for 194 days (B24-V39).
- 123 “to which my very nature”: RBF to Schwartz, undated (1932), B24-V40.

- 124 “porch with wheels”: RBF, “Epilogue,” in *UOO*, 359. More than fifty years later, RBF sent Schwartz a birthday sketch of him driving her to Brooklyn, which few would have recognized as a reference to their romantic history (RBF to Evelyn Stefansson Nef, May 31, 1983, B487-F2).
- 124 “Anne’s siblings”: Evelyn Stefansson Nef, *Finding My Way: The Autobiography of an Optimist* (Washington, DC: Francis Press, 2002), 53. The twins were Hope and Hester Hewlett.
- 124 “Being an expert con man”: Ibid.
- 124 “The top, made of sheet aluminum”: Ibid., 53–54.
- 124 “freezing reception”: Ibid., 54.
- 125 “valuable notes of lectures”: RBF to Herbert Biberman, May 11, 1931, B24-V39.
- 125 “Our chaste good-bye kisses”: Nef, *Finding My Way*, 55.
- 125 “developing the potentialities”: “Fuller Cited for Architect’s Work,” *Berkshire Eagle* (Pittsfield, MA), January 1, 1931.
- 125 “which he predicts”: “Home in 21st Century,” *New York Daily News*, November 9, 1929.
- 125 **Metropolitan Life**: RBF, *EIK*, session 10.
- 125 **Soviet trade office**: RBF to David J. Saposs, August 2, 1932, reprinted in *Shelter*, November 1932, 134.
- 125 “they would all want it”: RBF, “Dymaxion House,” in *SD*, 4344.
- 126 **Henry Wright**: Archibald MacLeish, “Five Questions . . . and a Striking Answer,” *Fortune*, July 1932, 62.
- 126 “a distinctly advanced”: RBF to John Fistere, May 5, 1943, B5-F12.
- 126 **Vanderlip hired Neutra**: Ibid.
- 126 “went dead”: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 126 **Pierce Foundation**: Much of the following account is based on Mark Wigley, *Buckminster Fuller Inc.: Architecture in the Age of Radio* (Zurich: Lars Müller, 2015), 97–107.
- 126 “I have never been to a place”: RBF to AHF, May 7, 1931, B46-F12.
- 127 “if he weren’t such a nut”: RBF to Schwartz, May 18, 1931, quoted in Wong, 94.
- 127 “an annoying bore”: RBF to AHF, undated (1931), B47-F4.
- 127 “blustering and blushing”: RBF to Howard Myers, December 3, 1943, quoted in Wigley, *Buckminster Fuller Inc.*, 106n73.
- 127 “ripen and harvest”: Richard Neutra to RBF, c. July 1931, quoted in Wong, 94.
- 127 “a nervous breakdown”: RBF to Schwartz, undated (1932), B24-V40.
- 128 “unfeeling cruelty”: Nef, *Finding My Way*, 57.
- 128 “two long months”: Ibid.
- 128 “intense and frustrating”: Ibid., 56.

- 128 **Starrett-Lehigh Building:** Morshed, *Impossible Heights*, 132–38.
- 128 **“I finally gave in”:** Nef, *Finding My Way*, 56. Nef recalled that these encounters took place before RBF’s visit to Bear Island, which is contradicted by the timing of his move to the Starrett-Lehigh Building.
- 128 **“Having gone this far”:** RBF to Schwartz, undated (1932), B24-V40.
- 128 **stalk her:** “I do not wait for you in the car at E.S. 34 or drive in front of your window late at night with the idea of tempting you to come to me or to arouse your sympathy. I do it . . . so that you may have no feeling of panicky abandonment” (RBF to Schwartz, undated [1931], B24-V40).
- 128 **“To the dearest nymph”:** Nef, *Finding My Way*, 56.
- 128 **“in almost hysterics”:** RBF, diary entry, December 27, 1931, B47-F2.
- 129 **“a direct contradiction”:** RBF to Schwartz, undated (c. January 1, 1932), B24-V40.
- 129 **“waiting to torture me”:** RBF, diary entry, January 2, 1932, B47-F2.
- 129 **“partial estrangement”:** RBF to AHF, July 31, 1932, B47-F1.
- 129 **“tension theories”:** Henry Churchill, “Structural Study Associates,” *Shelter*, May 1932, 5.
- 129 **“peripatetic guide”:** Ibid.
- 129 **4D Dymaxion:** SSA minutes, November 18, 1931, B26-V42.
- 129 **MacDougal Street:** Strum, *Ideal of Total Environmental Control*, 66.
- 129 **“colored shirt movements”:** RBF to T. H. Gibbins, December 10, 1976, quoted in Wong, 84.
- 129 **“penthouse”:** SSA blank letterhead, B1-V1.
- 130 **“He was quite large”:** Hatch, 115.
- 130 **“capitalists, industrial leaders”:** RBF, “Universal Architecture,” *T-Square*, February 1932, 22.
- 130 **“nothing at all to do with architecture”:** Wong, 115.
- 130 **ranking his possible endeavors:** RBF, notes, undated (1932), B26-V42, reprinted in Wong, 107.
- 130 **scraped together \$800:** RBF to J. Bryan III, July 1, 1939, B29-V46.
- 130 **insurance policy:** RBF to Karl Jansen, November 8, 1935, B36-V55.
- 130 **“Bucky Fuller and I”:** Philip Johnson and Robert A. M. Stern, *The Philip Johnson Tapes: Interviews by Robert A. M. Stern* (New York: Monacelli, 2008), 43.
- 131 **he had stolen it:** Hatch, 118.
- 131 **experimental house:** Strum, *Ideal of Total Environmental Control*, 165.
- 131 **slept on air mattresses:** Hatch, 118. Other sources refer to the location of this exhibit as the Roger Smith Hotel (Michaelis, *Best of Friends*, 41–43), which was the name of the Hotel Winthrop after 1938.
- 131 **“A Correlating Medium”:** Masthead, *Shelter*, May 1932.
- 131 **designed by Lönberg-Holm:** Gorman, *Designing for Mobility*, 52.

- 131 “Progressing towards ephemerality”: Photo caption, *Shelter*, May 1932, 10.
- 131 “Industrially reproducible compositions”: RBF, “Universal Architecture, Essay 3,” *Shelter*, May 1932, 35.
- 131 ideas were unintelligible: Philip Johnson to Max Levinson, May 27, 1932, quoted in Wong, 114.
- 131 “Bucky Fuller was no architect”: Strum, *Ideal of Total Environmental Control*, 84.
- 131 “At the same time”: RBF to George Howe, August 1, 1932, B47-F1.
- 132 SSA exhibition: RBF to the Pathé News, August 4, 1932, B46-F12.
- 132 Starling Burgess: RBF, “Our Intimate Journal of Summer Events,” *Shelter*, November 1932, 21–23; RBF, “Dymaxion—Confidential,” October 24, 1933, B30-V47; and Pawley, *Buckminster Fuller*, 52–53.
- 132 “some kind of abstract abortion”: RBF to AHF, August 16, 1932, B47-F1.
- 132 “for black men and women”: “House in Utopia,” *Time*, August 22, 1932, 12.
- 132 Soviet farms: J. Baldwin states incorrectly that RBF traveled to “the Ural Mountains” in connection with this project (*BuckyWorks: Buckminster Fuller’s Ideas for Today* [New York: John Wiley & Sons, 1996], 26). This trip was actually described by the architect Matthew Ehrlich in *Shelter*, November 1932, 93.
- 132 “in some shipyard”: “House in Utopia,” 12.
- 132 including his “cathedral”: Wong, 505.
- 132 “War days”: RBF to AHF, August 22, 1932, B47-F1.
- 132 homeless shelter: RBF, “Journal of the Space Hotel,” *Shelter*, November 1932, 55–61.
- 132 Wiscasset, Maine: RBF, “Designer Cooperative,” *Shelter*, November 1932, 23.
- 133 “the prototype”: Archibald MacLeish, “Five Questions . . . and a Striking Answer,” *Fortune*, July 1932, 62.
- 133 MacLeish was dropped: Wong, 114.
- 133 *Miss Expanding Universe*: Sadao, 103.
- 133 “A winter residence”: RBF, “An SSA Credit Consultation,” *Shelter*, November 1932, 33.
- 133 “The study”: RBF, “Putting the House in Order,” *Shelter*, November 1932, 2.
- 133 “Don’t fight forces”: Photo caption, *Shelter*, November 1932, 108. Simon Breines identified this saying as the “basic precept” of the SSA (“The Emergencies,” *Shelter*, May 1932, 22).
- 133 “the greater mass in front”: Le Corbusier, *Towards a New Architecture*, 146.
- 133 “A designer may”: RBF, “Streamlining,” *Shelter*, November 1932, 78.
- 134 “exploited for high gain”: RBF to Karl Jansen, November 8, 1935, B36-V55.
- 134 Franklin D. Roosevelt’s election: Hatch, 121.
- 134 “entailed too much scientific research”: RBF, “Our Intimate Journal of Summer Events,” *Shelter*, November 1932, 15.

- 134 “a simple matter”: Leon Levinson to J. C. Folsom, December 12, 1932, quoted in Lorange, 196.
- 134 “another piece of design novelty”: RBF to Howard Myers, October 28, 1943, B57-F2.
- 134 “The basic cost”: Marks, 23.
- 134 “Certain that he was dealing”: Ibid.
- 134 Pierce Foundation: Lorange, 198.
- 134 *Vanity Fair* magazine: “Hall of Fame,” *Vanity Fair*, December 1932, quoted in Wong, 121.
- 135 “ten architects”: Frank Lloyd Wright to RBF, August 30, 1932, Frank Lloyd Wright correspondence, 1900–1959, Getty Research Institute, F006C06.
- 135 Fuller and Noguchi teaching: Wright to RBF, November 29, 1932, B26-V42.
- 135 “I would certainly”: RBF to Wright, December 10, 1932, B26-V42.
- 135 “my friend”: “Fact and Comment,” *Los Angeles Times*, January 22, 1933.
- 135 “a messiah of ideas”: Auchincloss, “Dymaxion American,” *Time*, January 10, 1964, 49.
- 135 “I found myself being followed”: Hatch, 120.
- 135 “I premeditatedly began to drink”: Ibid.
- 135 “to streamline man’s competitive volition”: RBF, “New Year’s Resolution of Buckminster Fuller,” January 1, 1933, B26-V44.
- 135 “stumbling out of bars”: RBF, “Fuller, R. B.: On Drinking Liquor,” in *SD*, 6320.
- 135 spiked eggnog: Jaime Snyder, “Experiments in Food and Festivity,” afterword to *Synergetic Stew*, iii.
- 135 “my stupid time”: Rumwell, *Time* profile notes, Take 5, December 26, 1963, B126-F4.
- 135 Alfred Reeves: RBF, “Dymaxion—Confidential,” October 24, 1933, B30-V47.
- 136 “the customs and living conditions”: “Lone Alaskan Traveler,” *Pittsburgh Post-Gazette*, December 4, 1931, 26.
- 136 Vilhjalmur Stefansson: RBF to Schwartz, September 27, 1931, B24-V40.
- 136 “all sorts of things”: RBF, “Dymaxion—Confidential,” October 24, 1933, B30-V47.
- 136 had hosted a reception: “Social and Other Items of Interest,” *Philadelphia Inquirer*, December 7, 1932, 13.

FIVE: STREAMLINES

- 137 “We think of ourselves”: RBF with Applewhite, *Synergetics*, 619–20.
- 137 “The first motorcars”: Le Corbusier, *Towards a New Architecture*, 138.

- 137 **earliest sketches:** 4DT, 107.
- 137 **“jet stilts”:** RBF, “Influences,” 18.
- 137 **duck beating its wings:** Ibid.
- 138 **pole vaulter:** Marks, 25–26.
- 138 **“ground taxiing”:** RBF, “Influences,” 19.
- 138 **the Zoomobile:** Hatch, 122. Hatch spells it *zoommobile*, but the alternate spelling is found more frequently elsewhere.
- 138 **“like hydra cells”:** RBF, “Epilogue,” in *UOO*, 359.
- 138 **“If I want to use”:** Marks, 26. Hatch’s version refers to “ice cream sodas” (123).
- 139 **4D Dymaxion Corporation:** Much of the technical background in this section is drawn from Norman Foster and Jonathan Glancey, *Dymaxion Car*, ed. David Jenkins and Hsiao-Yun Chu (London: Ivorypress, 2010), 31–44.
- 139 **a bank holiday:** Hatch, 126.
- 139 **“I had been starving”:** RBF, *EIK*, session 9.
- 139 **“We waste so much”:** AHF to RBF, “Friday night” (March 24, 1933), B26-V44.
- 139 **“death wobble”:** Foster and Glancey, *Dymaxion Car*, 31.
- 140 **“Polish sheet metal experts”:** Marks, 27.
- 140 **Emma Lu Davis:** James M. Goode, *The Outdoor Sculpture of Washington, DC* (Washington, DC: Smithsonian Institution, 1974), 554.
- 140 **“most of which have been sold”:** Foster and Glancey, *Dymaxion Car*, 38.
- 141 **“It seems to me”:** RBF to Isamu Noguchi, June 28, 1933, quoted in Sadao, 88.
- 141 **“vested in us”:** RBF to Starling Burgess, June 20, 1933, B47-F3.
- 141 **instead of a “nobody”:** RBF, “Dymaxion—Confidential,” October 24, 1933, B30-V47.
- 141 **“aroused her maternal instinct”:** Ibid.
- 141 **nineteen feet in length:** By way of comparison, the 1932 Ford V-8 Model 18 was fourteen feet long, weighed 2,200 pounds, and retailed for \$465–\$655 (“1932 Ford V-8 Model 18 Technical Specifications and Dimensions,” <https://www.conceptcarz.com/s10206/ford-v-8-model-18.aspx> [accessed January 2022]).
- 142 **the first streamlined automobile:** Jonathon Keats, *You Belong to the Universe: Buckminster Fuller and the Future* (New York: Oxford University Press, 2016), 32–35.
- 142 **“air-cooled aviation engine”:** Foster and Glancey, *Dymaxion Car*, 35.
- 143 **multiplied its specifications:** Dan Neil, “A Test Drive of the Death-Trap Car Designed by Buckminster Fuller,” *Wall Street Journal*, April 24, 2015.
- 143 **“uneasy, oscillating swivels”:** Ibid. Neil’s observations were based on a copy of Car #1 commissioned by Jeff Lane, the founder of the Lane Motor Museum in Nashville.

- 143 “I had to practically”: Foster and Glancey, *Dymaxion Car*, 44.
- 143 **Diego Rivera**: Federico Neder, *Fuller Houses: R. Buckminster Fuller’s Dymaxion Dwellings and Other Domestic Adventures* (Baden, Switzerland: Lars Müller, 2008), 122–23.
- 143 **Seaside Park**: “Three-Wheeled Auto Goes 70 M. Per Hour,” *Boston Globe*, July 22, 1933, 9.
- 143 “was tired out”: RBF, “Dymaxion—Confidential” memo, October 24, 1933, B30-V47.
- 144 “going mad”: Ibid.
- 144 **cited for speeding**: Traffic summons (August 1, 1933) shown in *Buckminster Fuller: Thinking Out Loud*.
- 144 “midget racing car track”: RBF, *EIK*, session 9.
- 144 **impressed a policeman**: Marks, 29.
- 144 **At Roosevelt Field airport**: “Test 3-Wheeled Car with Engine in Rear,” *Brooklyn (NY) Daily Eagle*, August 11, 1933, 6.
- 144 “startling effect”: RBF to Lincoln Pierce, September 9, 1933, B29-V46.
- 144 **Walter Chrysler**: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 144 **fixed a “bug”**: Ibid.
- 145 **wanted to see the car**: Information on the car’s movements before the accident of October 27, 1933, is based primarily on materials in B30-V47 and Samuel Halsted’s notes on the inquest, November 16, 1933, B30-V48.
- 145 **Francis T. Turner**: Biographical sources include death certificate for Francis T. Turner, November 22, 1933, State of Illinois Department of Public Health.
- 145 **a lift to the airfield**: If all had gone according to plan, Sempill was slated to fly from Chicago to Akron, Ohio, to catch up with the zeppelin, while Turner would have proceeded with the car to Detroit, where an air conditioner was scheduled to be installed by Chrysler (“Dymaxion—Report of Fuller’s Chicago Trip,” confidential report, October 30, 1933, B30-V47).
- 145 **October 27**: The account of the accident is based on multiple sources, including Samuel Halsted to RBF (October 28, 1933), RBF to Vilhjalmur Stefansson (October 28), notes on the scene by RBF and Halsted (October 29), and the confidential report “Dymaxion—Report of Fuller’s Chicago Trip” (October 30), B30-V47; Samuel Halsted’s notes to RBF on the inquest (November 16), B30-V48; and contemporary news reports, especially “2 European Air Experts Hurt in Crash; One Dead,” *Chicago Tribune*, October 28, 1933, 3; Associated Press, “Driver Killed; Foreign Visitors Hurt When Three-Wheeled Car Overturns,” *Salt Lake Tribune*, October 28, 1933; and “Swerve Caused Crash,” *Birmingham News*, November 18, 1933.
- 145 **Meyer Roth**: “2 European Air Experts Hurt in Crash; One Dead,” 3.

- 146 **“not disfigured”**: RBF to Vilhjalmur Stefansson, telegram, October 28, 1933, B30-V47.
- 146 **“Steel bows”**: Ibid.
- 146 **“I believed in the car”**: “Dymaxion—Report of Fuller’s Chicago Trip,” October 30, 1933, B30-V47.
- 147 **not to attend Turner’s funeral**: Ibid.
- 147 **king of England**: RBF, *EIK*, session 9.
- 147 **sold it to an engineer**: For the car’s fate, see Foster and Glancey, *Dymaxion Car*, 87.
- 147 **“not rich but not broke”**: Memo by RBF, November 28, 1933, B30-V48.
- 147 **“driving odd type car”**: Death certificate for Francis T. Turner, November 22, 1933, State of Illinois Department of Public Health.
- 147 **“apparently having a race”**: Vilhjalmur Stefansson to Lester D. Gardner, December 11, 1933, B30-V8.
- 148 **shoe salesman**: Roth’s address was given as 4905 North Whipple Street in “2 European Air Experts Hurt in Crash,” 3. Census data indicates that a shoe salesman of that name lived on Whipple Street in 1940.
- 148 **“no such collision”**: Vilhjalmur Stefansson to RBF, December 11, 1933, B30-V48.
- 148 **“the pressure of finances”**: Nannie Dale Burgess (Biddle) to RBF, February 24, 1938, B38-V59.
- 148 **“the thousands of dollars”**: Max Levinson to RBF, April 20, 1937, B35-V54.
- 148 **“In future, I’ll stick to flying”**: UP, “Says He’ll Stick to Air in Future,” Baltimore *Evening Sun*, December 16, 1933, 3.
- 149 **excluded from the event**: RBF to J. Bryan III, July 1, 1939, B29-V46. Notes by Richard Hamilton on press coverage indicate that RBF knew before his arrival that the car would not be exhibited, and that he intended to park outside all along (B533-F7).
- 149 **“You produced the exact car”**: RBF, *EIK*, session 9.
- 149 **Leopold Stokowski**: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 149 **sizable estate**: “Darien Son Left Share of Mrs. Fuller Estate,” *Hartford Courant*, October 24, 1934.
- 149 **clapboard cottage**: *The 1936 Book of Small Houses* (New York: Simon & Schuster, 1936), 100–101.
- 149 **took credit**: RBF, “Universal Architecture Currently Appraised,” 1935, B36-V55.
- 149 ***Four Saints in Three Acts***: Foster and Glancey, *Dymaxion Car*, 100.
- 149 **Alexander Calder**: Jed Perl, *Calder: The Conquest of Time—The Early Years, 1898–1940* (New York: Alfred A. Knopf, 2017), 446. A letter from Calder to RBF from May 15, 1934, can be found in B31-V50.
- 150 **Thornton Wilder**: RBF to J. Bryan III, July 1, 1939, B29-V46.

- 150 “a smart young society matron”: Clare Boothe Brokaw to RBF, February 14, 1934, B31-V49.
- 150 “a sudden longing”: RBF to Brokaw, February 13, 1934, B31-V49.
- 150 “I am a tangle”: Brokaw to RBF, “Monday night” (1934), B31-V49.
- 150 “Anyway, Bucky I am going away”: Ibid.
- 150 misspelled her name “Claire”: RBF to Brokaw, February 13, 1934, B31-V49.
- 150 “the most thrillingly beautiful”: Ibid.
- 150 “the lovely love”: Ibid., undated (1934), B31-V49.
- 150 “very silly and hysterical”: Brokaw to RBF, February 14, 1934, B31-V49.
- 150 “I do not like the mutability”: Ibid.
- 151 “hungry telephoning beaux”: RBF to Brokaw, undated (1934), B31-V49.
- 151 “many times greater”: Ibid.
- 151 Frank Morley: Louise Cochrane, *The Sense of Significance* (Great Britain: Sidaway and Barry, 2015), 14.
- 151 *Saturday Review*: Christopher Morley, “Streamlines (Thoughts in a Dymaxion Car),” *Saturday Review of Literature*, March 31, 1934.
- 151 heard of him through Stefansson: Vilhjalmur Stefansson to H. G. Wells, August 12, 1932, reprinted in *Shelter*, November 11, 1932, 128–29.
- 151 “pleasantly high”: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 151 *Things to Come*: Foster and Glancey, *Dymaxion Car*, 49. The film ultimately featured a streamlined flying vehicle, but the design was credited to others.
- 151 a newsreel: “1934 Dymaxion Car Invention Newsreel Archival Footage,” YouTube, 0:19, PublicDomainFootage, October 6, 2013, <https://www.youtube.com/watch?v=MxMg-391LQw>.
- 151 “astonishing automobile”: “Tadpole on Wheels,” *New Yorker*, May 5, 1934, 94.
- 152 Dymaxion Tudor Sportster: RBF, *The Artifacts of R. Buckminster Fuller: A Comprehensive Collection of His Designs and Drawings*, vol. 1, ed. James Ward (New York: Garland, 1985), 171–73.
- 152 five hours: Foster and Glancey, *Dymaxion Car*, 50.
- 152 “Everybody in the stands”: RBF, *EIK*, session 9.
- 152 “immensely interested”: RBF to H. G. Kimball, January 4, 1936, B37-V56.
- 152 purchase an engine: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 152 “the greatest artist”: RBF, *Nine Chains*, 219.
- 152 Soviet trade office: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 152 a Soviet deal for two cars: “Soviet Buys Two Dymaxions,” *Bridgeport (CT) Times-Star*, July 23, 1934, and Baldwin, *BuckyWorks*, 99.
- 152 Frank Henry: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 152 *Little Dipper*: Hatch, 131.
- 153 sheriff of Fairfield: Ibid., 133.

- 153 **two property seizures:** Foster and Glancey, *Dymaxion Car*, 51.
- 153 **a liquidation sale:** A. E. Magnell, "Hartford Stocks," *Hartford Courant*, April 13, 1935.
- 153 **Amelia Earhart:** RBF noted a visit from "Amelia Erhardt [sic]" in his diary for June 10, 1934 (B31-V50). A photograph of RBF, Earhart, and Sir Charles Kingsford Smith is reproduced in Foster and Glancey, *Dymaxion Car*, 65. RBF recounted his 1935 trip with Earhart in his letter to J. Bryan III, July 1, 1939, B29-V46. Another account appears in Doris L. Rich, *Amelia Earhart: A Biography* (Washington, DC: Smithsonian Institution, 1989), 200.
- 153 **let go of the steering wheel:** RBF to Bob Stuart, February 11, 1980, B411-F2.
- 153 **Mrs. Roosevelt "was not yet convinced":** Isabelle Florence Story, "Chatting with the First Lady," *Clarksville (TN) Leaf-Chronicle*, March 7, 1935, 2. RBF's friend Kay Halle offered a different account of Roosevelt's encounter with the car in "The Time of His Life," *Washington Post*, February 5, 1978: "[RBF] had asked me to invite Eleanor Roosevelt to drive with him on one of its first trial runs, which she graciously accepted. After they had gone a short distance, it nosed into the curb, and to Bucky's despair, stalled!"
- 153 **President Roosevelt:** RBF to J. Bryan III, July 1, 1939, B29-V46.
- 153 **letter to the First Lady:** RBF to Eleanor Roosevelt, February 8, 1936, B37-V56.
- 153 **minor accident in February:** A May 29, 1935, letter from the Hartford Accident and Indemnity Company to RBF referred to accidents on February 27 and May 27 (B36-V55).
- 153 **"I think he thought":** Foster and Glancey, *Dymaxion Car*, 51.
- 153 **returning to the damaged vehicle:** RBF to J. Bryan III, July 1, 1939, B29-V46.
- 153 **J. Mezes and Sons:** The proprietor was John Mezes Sr., whose son Theodore E. Mezes purchased *Dymaxion #2* in July 1950. Mezes brought the car to Mesa, Arizona, where three students at Arizona State University acquired it in 1968, and it was later bought by William F. Harrah (Foster and Glancey, *Dymaxion Car*, 51–52 and 101).
- 154 **"for advertising hire":** RBF to J. Bryan III, July 1, 1939, B29-V46.
- 154 **Waterhouse Company:** *Bear Island Centennial Book*, 35 and 49, and Tomkins, "In the Outlaw Area," *New Yorker*, January 8, 1966, 86. Correspondence between RBF and his creditors can be found in B31-V50.
- 154 **"with the little money":** AMS, 72
- 154 **"She was the most stable car":** Lord, *Pilot for Spaceship Earth*, 82.
- 154 **Isamu Noguchi drove to California:** Herrera, *Listening to Stone*, 122, and Michaelis, *Best of Friends*, 65.
- 154 **"America becomes":** Noguchi to RBF, July 1, 1935, B36-V55.
- 155 **"Our wedding":** RBF, notes on Francise Clow, undated (1935), B36-V55.

- 155 “You should never have met Bucky”: RBF to Clow, June 23, 1935, B36-V55.
- 155 “with animal fear”: Clow to RBF, undated (1935), B36-V55.
- 155 “This route is perhaps”: Ibid., June 29, 1935, B36-V55.
- 155 “cramming my mouth”: Ibid., September 6, 1935, B36-V55.
- 155 Gilbert Stearns: RBF rebuked AHF for her trip upstate with Stearns in a letter dated July 31, 1932 (B47-F1). Stearns is identified as “Gee” in Hatch, 131.
- 155 his sins had been “myriad”: RBF to AHF, July 28, 1935, B36-V55.
- 156 “a dog avoiding medicine”: Ibid., August 22, 1935, B36-V55.
- 156 “at its most perilously feeble state”: RBF, “The Bear Island Story,” Series 7, B6-F14, 32.
- 156 “two vital affairs”: RBF to Francise Clow, September 7, 1935, B36-V55.
- 156 James Joyce: *From the Library of R. Buckminster Fuller* (New York: Glenn Horowitz Bookseller, 2004), 7. “After the publication of Fuller’s book *Nine Chains to the Moon* in 1938, Joyce himself wrote Fuller a testimonial, praising him for the clarity and comprehensiveness of his style” (Robert W. Marks, “Bucky Fuller’s Dymaxion World,” *Science Illustrated*, November 1948). No such letter has been found in the Chronofile.
- 156 “air map”: RBF was publicly using this term at least by 1937 (“Buckminster Fuller Speaks at College,” *Bennington [VT] Evening Banner*, April 30, 1937, 1).
- 156 *Eight Chains to the Moon*: Paul B. Hoeber to RBF, December 3, 1935, B36-V55.
- 157 his wife, Peggy: Correspondence with Peggy Osborn appears in B36-V55, along with letters addressed to RBF care of the Osborns.
- 157 “each verbal dose”: RBF, *No More Secondhand God, and Other Writings* (Carbondale: Southern Illinois University Press, 1963), x.
- 157 “This is lucid”: Ibid.
- 157 “Who were those poets?": Kenner, *Bucky*, 219.
- 157 Bell Telephone: RBF, “Earth, Inc.,” in *BFR*, 248–49.
- 158 “quite dyslexic”: Allegra Fuller Snyder, interviewed by author, March 26, 2019.
- 158 “One of you was the new world”: Francise Clow to RBF, November 4, 1935, B36-V55.
- 158 a “veil”: Ibid.
- 158 “We never had any conflict”: Michaelis, *Best of Friends*, 59.
- 158 “Please wire me rush”: RBF, *Nine Chains*, 73.
- 158 “Einstein’s formula”: RBF to Noguchi, telegram, undated (1935), B36-V55. Reprinted in RBF, *Nine Chains*, 73–74.
- 159 “You cannot imagine”: Francise Clow to RBF, December 10, 1935, B36-V55.

- 159 “established the metallurgical principle”: Marks, 32.
- 159 “They were really very scared”: RBF, *EIK*, session 6.
- 159 the concept of “lag”: RBF, *CP*, 282–84.
- 159 spike in the scrap supply: Ibid., 284. In fact, secondary production from old copper scrap increased only slightly from 267,300 short tons in 1938 to 286,900 short tons in 1939. By 1940 the figure had risen to 333,890, which was still considerably lower than the 408,900 short tons recorded in 1937. Figures based on US Bureau of the Census, *The Statistical History of the United States, from Colonial Times to the Present* (New York: Basic Books, 1976), 602.
- 159 “the highly mechanized dwelling”: RBF to William Osborn, February 27, 1936, B37-V56.
- 160 his bathroom: Background and technical details drawn from Marks, 96–97, and Wigley, *Buckminster Fuller Inc.*, 108–15.
- 160 *Architectural Record*: Wigley, *Buckminster Fuller Inc.*, 108–9.
- 161 Richard Neutra: RBF to John Fistere, May 5, 1943, B55-F2.
- 161 Jasper Morgan: RBF to William Osborn, December 20, 1937, B38-V61.
- 161 “You are always trying”: RBF, “Fuller, R. B.: A Propos Ben Franklin,” in *SD*, 6341.
- 161 Ellen Tilton: Letters hinting at an intimate relationship can be found in B37-V57, B38-V59, and B38-V61. Tilton had previously designed a house consisting of “a flat, circular platform, covered in a glass dome” (“Mrs. Holmsen—Crusader,” *American Weekly* [insert], *San Francisco Examiner*, January 27, 1935, 9).
- 161 Evelyn Schwartz: Nef, *Finding My Way*, 52.
- 161 “The Silver Prince himself”: Tom Wolfe, *From Bauhaus to Our House* (New York: Farrar, Straus & Giroux, 1981), 45.
- 161 Fuller obtained his notes: RBF to Walter Gropius, December 31, 1937, B35-V54.
- 161 “So I rashly wrote back”: *AMS*, 69.
- 161 Cooper’s invitation: Viola Cooper to RBF, February 22, 1938, B35-V54.
- 162 Morris Fishbein: RBF referred to the host as “Dr. Fishbein” (RBF and Dil, *Humans in Universe*, 41), whom Hatch identifies as “Doctor Morris Fishbein” (141). Morris Fishbein was the editor of the *Journal of the American Medical Association*, and his detailed social journal for the period makes no mention of Einstein (Morris Fishbein Papers, University of Chicago, B95-F8).
- 162 “mystical aura”: *AMS*, 69.
- 162 “horsepower” of everyday life: RBF, *Nine Chains*, 70–82.
- 162 “Young man, you amaze me”: RBF marginalia in *Physical Science* by Sir James Jeans, quoted in Wong, 194n160.

- 162 “Mr. Einstein’s statement”: Ibid.
- 162 “Whether or not I shall be convinced”: RBF to J. Bryan III, July 1, 1939, B29-V46.
- 162 Fuller’s tangled prose: A chapter on the secret meaning of the alphabet, “Bible to Babble to Bible,” was removed as “much too esoteric” (RBF, “Local vs. Comprehensive,” in *SD*, 9701). A revised version, “The Game of Life,” was made available to readers for \$1 (RBF, *Nine Chains*, 368). Drafts can be found in Series 8, B3-F4.
- 162 “big book”: “Book Notes,” *Morning Call* (Allentown, PA), June 12, 1938.
- 163 “It may serve as a snare”: Ruth Green Harris, “Art in Our Daily Lives,” *New York Times*, May 1, 1938, sec. 10, 9.
- 163 plumbers union: RBF, *EIK*, session 10.
- 163 had reacted positively: A complimentary piece in the *Ladle* (April 1937), a publication of the New York State Association of Master Plumbers, is reprinted in Marks, 101.
- 163 trip with Christopher Morley: Cochrane, *Sense of Significance*, 45–46.
- 163 László Moholy-Nagy: Ibid., 129.
- 163 called him “Buckling”: RBF to Christopher Morley, December 3, 1940, B50-F2.
- 163 Fuller and Morley traveled: Cochrane, *Sense of Significance*, 47–54.
- 163 “in stupor”: Christopher Morley, “Ammonoosuc,” reprinted in *ibid.*, 52.
- 163 “with Bucky at the wheel”: Hatch, 147. RBF later denied this account: “The story of the potty on the truck (from Alden Hatch) is not true” (notes on the teleplay *What One Man Can Do* by Mark Stouffer, 46A, B496-V7).
- 164 all his royalties: Agreement between RBF and William Osborn, July 22, 1938, B38-V61.
- 164 Bil Baird: RBF to Joseph W. Lippincott, February 27, 1939, B39-V63, and Marks, 150.
- 164 “The reward”: RBF, *Nine Chains*, x.
- 164 “A self-balancing”: Ibid., 18–19.
- 164 “phantom captain”: Ibid., 19.
- 164 “the universal extension”: Ibid., 43.
- 165 from track to “trackless”: Ibid., 300–301.
- 165 “This is a practical key”: Ibid., 281.
- 165 “energy slaves”: RBF, “World Energy” map in “U.S. Industrialization,” *Fortune*, February 1940.
- 165 “rented” raw materials: RBF, *Nine Chains*, 321.
- 165 “utterly different”: Ibid., 341.
- 165 “plenitude” goods: Ibid., 275.
- 165 “through the effort of one man”: Ibid., 40.
- 165 amateurs for “publicity”: Ibid., 313.

- 166 “perfect whore house”: Ibid., 389.
- 166 “scientific dwelling machine”: Ibid., 405. RBF dated this invention to 1927.
- 166 “way of a man with a maid”: Ibid., xvii.
- 166 “emergence through emergency”: Ibid., 240–46.
- 166 “receiving and sending apparatus”: Ibid., 380.
- 166 “geometrical progression”: Ibid., 370.
- 166 “The author has sound knowledge”: William Marias Malisoff, “The Dymaxion Way,” *New York Times Book Review*, October 9, 1938, 14.
- 166 “I know it will be”: RBF to Frank Lloyd Wright, July 5, 1938, Frank Lloyd Wright correspondence, 1900–1959, Getty Research Institute, F031A02.
- 166 “the most sensible man”: Frank Lloyd Wright, “Ideas for the Future,” *Saturday Review of Literature*, September 17, 1938, 14.
- 166 “I still get a little chokey”: RBF to Frank Lloyd Wright, September 26, 1938, B39-V62.
- 167 “something like heaven”: RBF in Wright, *Shining Brow*, 134.
- 167 Eleanor Roosevelt’s syndicated newspaper column: Eleanor Roosevelt, “My Day,” *Knoxville (TN) News-Sentinel*, February 28, 1939, 17.
- 167 “R. Buckrogers Fuller”: Clifton Fadiman, “R. Buckrogers Fuller,” *New Yorker*, September 10, 1938, 93. In his review, Fadiman referred to RBF’s “Leonardesque mind.”
- 167 “by the thousands”: “Building for Defense,” *Architectural Forum*, June 1941.
- 167 binding his Chronofile: Allegra Fuller Snyder, “The R. Buckminster Fuller Archives,” in *Anthology*, 321–22.
- 167 “A man has only one escape”: Clare Boothe Luce, *The Women* (New York: Dramatists Play Service, 1966), 25.
- 167 *Chassis Fountain*: Sadao, 113.
- 168 “I remember very well”: Herrera, *Listening to Stone*, 105.
- 168 Hale threw herself: “Dorothy Hale Dies in 16-Story Plunge,” *New York Times*, October 22, 1938, 34. Other sources include Andrea Kettenmann, *Frida Kahlo, 1907–1954: Pain and Passion* (Cologne, Ger.: Taschen, 2003), 46–51, and Herrera, *Listening to Stone*, 105.
- 168 “Dorothy has given us”: RBF and Noguchi to Mrs. Grant Mason (Jane), undated (1938), B39-V62.
- 168 “I have been terribly saddened”: Francise Clow to RBF, October 25, 1938, B39-V62.
- 168 “a beribboned bomb”: Geoffrey T. Hellman and Harold Ross, “Ribbon Around Bomb,” The Talk of the Town, *New Yorker*, November 5, 1938, 19.
- 168 memorial portrait: Sylvia Jukes Morris, *Rage for Fame: The Ascent of Clare Boothe Luce* (New York: Random House, 1997), 330–32, 338–39.
- 168 “the idea market of the world”: RBF to A. L. Furth, memo, November 14, 1938, B39-V62.

- 169 “The New US Frontier”: “The U.S. Frontier,” *Fortune*, September 1939, 76.
- 169 “this inadvertent declaration”: RBF to Max Schuster, February 7, 1939, B39-V63.
- 169 hockey stick: James Lonsdale-Bryans to RBF, November 8, 1938, B39-V62.
- 169 “trajectory through the ages”: RBF, “Ballistics of Civilization,” March 14, 1939, B39-V63.
- 169 move to Canada: RBF claimed that Henry Luce said that he was proven right when Britain transferred its secret archives to Ottawa in World War II (RBF, *EIK*, session 6).
- 169 “on the rebound from him”: Wilfrid Sheed, *Clare Boothe Luce* (New York: Berkley Books, 1984), 67.
- 169 “The sewing or calculating machines”: RBF, “A Speech to be Made by Henry Luce,” 1939, B39-V63.
- 169 Gilbert Seldes: Marian Seldes, “My Best Friend’s Father,” in *Anthology*, 171–73.
- 169 “the learning of geography”: “Television II,” *Fortune*, May 1939, 70.
- 170 Al Hirschfeld: Al Hirschfeld to RBF, note, January 24, 1939, B39-V63.
- 170 Gertrude Vanderbilt Whitney: At the end of 1939, RBF was approached by Whitney to consult on color and lighting for a sculptural fountain for the World’s Fair. RBF advocated “such new materials as neon tubing, Lucite, and Plexiglas,” but the design went unused (B. H. Friedman, *Gertrude Vanderbilt Whitney: A Biography* [Garden City, NY: Doubleday, 1978], 627).
- 170 Arshile Gorky: Hayden Herrera, *Arshile Gorky: His Life and Work* (New York: Farrar, Straus & Giroux, 2003), 335 and 399.
- 170 Alexander King: RBF, *EIK*, session 3. The play was *Profound Bow to Memory* (“Solo Dramatist,” *New Yorker*, September 23, 1939, 15).
- 170 “I believe that you could communicate”: Hatch, 184, and RBF, *EIK*, session 12.
- 170 designs for the Dymaxion Car: Foster and Glancey, *Dymaxion Car*, 205. The designs dated from 1934 (RBF, *Artifacts of R. Buckminster Fuller*, vol. 1, 171–73).
- 170 L. Ron Hubbard: Sadao, 82. Hubbard mentions seeing Stefansson at the Explorers Club in a letter dated December 13, 1939 (L. Ron Hubbard, *Adventurer/Explorer: Daring Deeds & Unknown Realms* [Commerce, CA: Bridge Publications, 1996], 99).
- 170 Fuller’s series of articles: A complete list of the articles to which RBF contributed can be found in RBF, “Memorandum of Activities,” Series 4, B6-F6, 4.
- 170 “I read *Patent Gazette*”: RBF, “Reading,” in *SD*, 14848.
- 171 article on drug development: “Cure by Chemicals,” *Fortune*, September 1939, 45.

- 171 “money enough to wage his own war”: “Revolution in Radio,” *Fortune*,
October 1939, 121.
- 171 **transmission methods**: “The Coming Boom in Kilowatts,” *Fortune*,
December 1939, 58–60, 106–12.
- 171 **Glenn L. Martin**: “Glenn L. Martin Co.,” *Fortune*, December 1939, 73–77,
126–30.
- 171 “that wants to revolutionize”: “Plywood,” *Fortune*, January 1940, 42.
- 171 “expert on America’s future”: “The Future in the News,” *Life*, June 5,
1939, 86.
- 171 “the scope and daring of Leonardo”: Russell Davenport, “Bucky Fuller’s
Notebook,” in RBF, *Untitled Epic Poem*, vii. An original draft is preserved
in Series 8, B5-F1.
- 171 “I send for Bucky”: Hatch, 151.
- 171 “the most important nation”: *Fortune*, contents page, February 1940.
- 171 “You have set back”: Peter Drucker, *Adventures of a Bystander* (New
York: John Wiley & Sons, 1997), 246.
- 171 “US Industrialization”: *Fortune*, February 1940. Reprinted in RBF, *The
World Game: Integrative Resource Utilization Planning Tool* (Carbondale:
Southern Illinois University Press, 1971), 48–61.
- 172 “energy slaves”: “World Energy” map in “U.S. Industrialization,” *Fortune*,
February 1940.
- 172 “No More Secondhand God”: RBF dates the poem in *No More Secondhand
God*, 3.
- 172 “God is a verb”: *Ibid.*, 28.
- 172 “in a hell of a hurry”: *Ibid.*, 30.
- 172 **Frank Lloyd Wright and E. E. Cummings**: List of recipients for “No More
Secondhand God,” 1940, B49-F2.
- 172 “Untitled Epic Poem”: RBF’s manuscript list dates it to November 1939
(Series 4, B6-F5). He credited “about 10 percent of the wording” of the
poem to Russell Davenport (*SD*, xxv).
- 172 **Sperry Corporation**: “Sperry: The Corporation” and “Sperry’s Spinning
Wheel,” *Fortune*, May 1940, 52–64, 94–99, 112–21.
- 172 “extensions of the sensorial spectrum range”: *New Worlds in Engineering*
(Detroit: Chrysler Corporation, 1940), 15.
- 172 “butchered” by publicists: RBF, note on front endpapers of *New Worlds in
Engineering*, B536-F5.
- 173 “It’ll just make those fellows”: RBF, “Corporation,” in *SD*, 3033.
- 173 “qualified for such mastery”: RBF, “Machine Tools,” in *No More
Secondhand God*, 46. According to RBF, an excerpt was published in the
December 1940 issue of *Fortune* (*ibid.*, xi).
- 173 “with some part”: RBF, note, undated (1940), B50-F4.

- 173 **Mechanical Wing:** “The Mechanical Wing,” *Architectural Forum*, October 1940, 273.
- 173 **leisurely ramble:** Cochrane, *Sense of Significance*, 72–74. Hatch dates the trip incorrectly to “the early summer” (157–58).
- 173 **poker game:** Geoffrey T. Hellman and Harold Ross, “Bomb Shelter,” *The Talk of the Town*, *New Yorker*, October 4, 1941, 14.
- 174 **“any portable buildings at all”:** Letter to RBF, March 11, 1941, B50-F8.
- 174 **scorching day:** RBF, *EIK*, session 10. Temperature information from Charles Chamberlain, “Tin House Newest Wrinkle in National Defense Boom,” *Macon Chronicle-Herald* (MO), July 5, 1941.
- 175 **“More than any other man”:** RBF to Geoffrey T. Hellman, September 21, 1944, B59-F2.
- 175 **museum’s importance in wartime:** Beatriz Colomina, “DDU at MoMA,” *ANY: Architecture New York*, no. 17 (1997): 52.
- 176 **photographed for Vogue:** *Ibid.*, 53.
- 176 **“It might jump off the ground”:** Hellman and Ross, “Bomb Shelter,” 14.
- 176 **informal discussion group:** David Cort, *The Sin of Henry R. Luce: An Anatomy of Journalism* (Secaucus, NJ: Lyle Stuart, 1974), 290–91.
- 176 **“as light and as terrible”:** RBF and David Cort, “Foot Pound Hitting Power of an Energy-Borne Economy,” May 1942, B536-F3, 7.
- 176 **“liquid oxygen or uranium”:** *Ibid.*
- 176 **“John, there’s a war on”:** John Fistere in *Synergetic Stew*, 85.
- 176 **“several technical devices”:** RBF to Charles Edison, January 30, 1942, B52-F6.
- 176 **tracing geodesic lines:** Sadao, 133.
- 177 **“beautiful little clear crystal balls”:** RBF, *EIK*, session 7.
- 177 **“six in its own plane”:** Thompson, *On Growth and Form*, 328. RBF mentioned the book in his diary for 1943 (B59-F4), but he may have encountered it earlier. He also listed the 1948 edition in his “Live Book Squad” of books that he carried in a mobile footlocker (Series 4, B6-F6).
- 177 **It had appeared in his sketches:** RBF, undated sketch (1935), B36-V55.
- 177 **regular icosahedron:** RBF to Christopher Morley, October 9, 1943, B57-F2.
- 178 **a “presumptuous” gesture:** RBF, “Vector Equilibrium,” in *SD*, 20064.
- 178 **less distortion:** RBF, “Fluid Geography,” in *BFR*, 151.
- 179 **only four segments:** Sadao, 134.
- 179 **“three-way great circle grid”:** RBF, “Noah’s Ark #2,” in *Discourse*, 181.
- 179 **son of the architectural professor Edwin Park:** The late David Park stated that RBF presented him with this version of the Dymaxion Map “around 1935” (Sadao, 133), which contradicts the available evidence. In all likelihood, RBF initially gave Park a copy of his earlier “air map,”

perhaps during his visit to Bennington in April 1937, in which he spoke on his work at Phelps Dodge: "A map of the world used in the study was explained by Mr. Fuller as an 'air map'" ("Buckminster Fuller Speaks at College," *Bennington (VT) Evening Banner*, April 30, 1937). RBF lectured at Bennington again in April 1942 ("Technical Expert at College Tomorrow," *Bennington (VT) Evening Banner*, April 9, 1942), and it seems likely that he gave the Dymaxion Map to Park or his father on this later visit.

- 180 "that they never knew were wrong": RBF to Wilber B. Larkin, March 26, 1942, B54-F3.
- 180 five of his "igloos": Robert Colgate to Wilber B. Larkin, April 1, 1942, B53-F5.
- 180 a custom tool kit: Marks, 119.
- 180 cooling effect: Baldwin, *BuckyWorks*, 37.
- 180 Martha Graham: Martha Graham to RBF, January 30, 1964, B125-F8.
- 180 hundreds were made: Marks, 35.
- 180 "immaculate discipline": RBF, "I Figure," in *BFR*, 125.
- 181 "respective twenty-five-year martyrdom": RBF to Lincoln Pierce, telegram, July 10, 1942, B53-F10.

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- 182 "Physical points": RBF with Applewhite, *Synergetics*, 258.
- 182 speech on postwar industry: RBF to Avery Pierce, October 1, 1943, B57-F2. A manuscript draft of the speech, "Flow Diagram into Tomorrow," appears in B54-F5.
- 183 became the D-45: Technical details drawn from Pawley, *Buckminster Fuller*, 79–84, and Foster and Glancey, *Dymaxion Car*, 14–15 and 72–73.
- 183 "three-cornered deal": RBF to John Breck, January 26, 1943, B55-F1.
- 183 Frank Lloyd Wright: RBF, diary entry, February 25, 1943, B49-F4.
- 183 "amateur mathematician": Edgar J. Applewhite, "An Account by R. Buckminster Fuller of His Relations with Scientists During the Development of His Energetic Geometry," Series 8, B12-F23, 4.
- 183 Cynthia Lacey: Biographical information drawn from "Particulars and Experience Record," 1947, B67-F16.
- 184 cook breakfast: Lacey to RBF, December 4, 1944, B60-F2.
- 184 "functional" strategy: RBF to Alex Taub, "Only One Substitution to Be Made," December 31, 1942, B54-F4.
- 184 "Where a man is sinking": Conversion Conference transcript, January 14, 1943, B55-F1.
- 184 "If you are in a shipwreck": RBF, *Operating Manual*, 9.

- 184 “an extraordinary engineer”: Alex Taub to Henry Kaiser, January 27, 1943, B55-F1.
- 185 read secret intercepts: RBF to Alex Taub, March 8, 1943, B55-F1, and RBF, *CP*, 104.
- 185 “pasted together”: RBF to William Phillip Churchill, October 19, 1943, B57-F2.
- 185 “pure invention”: RBF, *Inventions*, 90.
- 185 “particularly fine”: RBF to Kenneth R. Deardorf, March 19, 1943, B55-F1.
- 185 ignoring his grid: RBF to Martin Gardner, August 26, 1975, quoted in “Dymaxion Airocean World Map,” in *SD*, 4314.
- 185 “irregular solid”: “*Life* Presents R. Buckminster Fuller’s Dymaxion World,” *Life*, March 1, 1943, 42.
- 185 greatest success to date: Although the issue was said later to have been the first to sell 3 million copies (Hatch, 167), the magazine’s circulation had really peaked at 4.2 million prior to the institution of wartime paper rationing (“An Announcement to *Life* Readers,” *Life*, February 15, 1943, 34).
- 185 Winston Churchill: RBF, *EIK*, session 6.
- 185 “Bucky, in life”: Dialogue reconstructed from Marks, “Bucky Fuller’s Dymaxion World,” *Science Illustrated*, November 1948; RBF, “Inexorability,” in *SD*, 8100; and RBF, *EIK*, session 6.
- 186 copper hemispheres: RBF to A. J. Benson, December 14, 1943, B57-F2.
- 186 “the research and development”: RBF to Alex Taub, memo, March 9, 1943, B55-F1.
- 186 “I’m going to make your hair”: Memo by RBF, March 24, 1943, B55-F1.
- 186 spoke of “sunset”: RBF and Cynthia Lacey, “Motion Economics,” B537-F1, 52.
- 186 “from their enemy”: *Ibid.*, B537-F2, 82.
- 186 up and down: *Ibid.*, B537-F1, 46.
- 187 “most financially successful”: *Ibid.*, B537-F2, 63.
- 187 “inferior citizenry”: *Ibid.*, B537-F2, 105.
- 187 “charges of paternalism”: RBF and Cynthia Lacey, “Contact Economy,” B537-F8, 5.
- 187 Taub had covertly assumed control: Alex Taub designed engines for Chevrolet, Vauxhall Motors, and the Churchill tank, but there is no evidence that he consulted for Kaiser during the period in question. In Hatch, 171, Taub is described only as “the man who had designed the current Chevrolet engine,” and no mention is made of the fact that he was RBF’s supervisor.
- 187 “I would rather”: RBF to Avery H. Pierce, October 1, 1943, B57-F2.
- 187 Office of Strategic Services: Barry M. Katz, “The Arts of War: ‘Visual Presentation’ and National Intelligence,” *Design Issues*, Summer 1995, 3–21.

- 188 **Charles Fenn:** Charles Fenn, *At the Dragon's Gate: With the OSS in the Far East* (Annapolis, MD: Naval Institute Press, 2004), 3–6, and correspondence in B55-F2.
- 188 **“slowly erected extension”:** RBF to Alex Taub, memo, February 1, 1943, B54-F4.
- 188 **Getúlio Vargas:** RBF, *CP*, 288–89.
- 188 **Louis I. Kahn:** For Kahn and RBF's earlier encounters, see Sarah Williams Goldhagen, *Louis Kahn's Situated Modernism* (New Haven, CT: Yale University Press, 2001), 231n3.
- 188 **“Dymaxion Sleep”:** “Science: Dymaxion Sleep,” *Time*, October 11, 1943, 27.
- 189 **map by Irving Fisher:** “Airways to Peace” master checklist, Museum of Modern Art.
- 189 **“outside-in” globe:** Monroe Wheeler, “A Note on the Exhibition,” in “Airways to Peace: An Exhibition of Geography for the Future,” *Bulletin of the Museum of Modern Art*, August 1943, 22, caption on 9.
- 189 **would be “disgusted”:** RBF, “Fluid Geography,” in *BFR*, 148.
- 189 **Brazil report:** RBF, “A Compendium of Certain Engineering Principles Pertinent to Brazil's Control of Impending Acceleration in Its Industrialization,” in RBF, *CP*, 293–308.
- 189 **move directly to “trackless”:** *Ibid.*, 302.
- 189 **“the leading skyport of the world”:** *Ibid.*, 294.
- 189 **“unofficial channels”:** Memo, RBF meeting with Arthur Paul, July 4, 1944, B59-F4.
- 189 **“twenty times as big”:** RBF, “Cost of Various Industries for China,” August 30, 1943, B57-F1.
- 189 **running joke:** RBF, *EIK*, session 9.
- 189 **“scientific” house:** RBF to W. J. McGoldrick, December 10, 1943, B57-F2.
- 190 **eight tetrahedra:** RBF, “Dymaxion Comprehensive System: Introducing Energetic Geometry,” in *Discourse*, 163.
- 190 **“comprehensive system”:** RBF with Applewhite, *Synergetics*, 84.
- 190 **“energetic geometry”:** RBF, “Dymaxion Comprehensive System,” 160–68.
- 190 **By adding up the balls:** “Made experiment composing spheres—discovered 92 elements,” RBF, diary entry, August 8, 1943, B59-F4.
- 191 **“my life's policy”:** Gilbert A. Harrison, *The Enthusiast: A Life of Thornton Wilder* (New Haven, CT: Ticknor & Fields, 1983), 320.
- 191 **“as a joke, like numerology”:** Applewhite, “Account by R. Buckminster Fuller of His Relations with Scientists,” Series 8, B12-F23, 3.
- 191 **John Wolfenden:** *Ibid.*, 2–3.
- 191 **Vannevar Bush:** RBF claimed later to have met Bush (Hatch, 172), but no such meeting was recorded in his diary.
- 191 **“relating the discovery”:** RBF, office diary entry, October 13, 1943, B59-F4.

- 191 “powerfully effective”: RBF and Dil, *Humans in Universe*, 125.
- 191 “unanimous surprise”: RBF, “Earth, Inc.,” in *BFR*, 232n.
- 191 “She aids me”: RBF to Watson Davis, June 5, 1947, B67-F14.
- 191 “Dymaxion Comprehensive System”: RBF, “Dymaxion Comprehensive System,” 160–68.
- 192 attempt at “lucidity”: RBF to Kenneth Beirn, March 13, 1944, B58-F2.
- 192 “It may be that we”: RBF, office diary entry, October 26, 1943, B59-F4.
- 192 “The ‘higher-ups’ have decided”: Alex Taub to RBF, memo, December 15, 1943, B57-F2.
- 192 German magazine: According to Dave Cort, the original article (“Air Transport,” *Life*, November 30, 1942, 75–85) was reprinted in *Die Wehrmacht* (Cort to RBF, December 7, 1943, B57-F2).
- 192 “an aluminum bell”: RBF to J. E. Haines, December 14, 1943, B57-F2.
- 192 “Fluid Geography”: RBF, “Fluid Geography,” *American Neptune* 4, no. 2 (April 1944): 118–36. Reprinted in *BFR*, 133–52.
- 192 “I prayed so hard last night”: Lacey to RBF, undated (1944), B58-F2.
- 193 “the uncomfortable position”: RBF, office diary entry, June 21, 1944, B59-F4.
- 193 “all our experience”: “What Is a House?,” *Arts & Architecture*, July 1944. Reprinted in Charles Eames and Ray Eames, *An Eames Anthology: Articles, Film Scripts, Interviews, Letters, Notes, Speeches*, ed. Daniel Ostroff (New Haven, CT: Yale University Press, 2015), 19.
- 193 “All three agreed”: RBF office diary, July 12, 1944, B59-F4.
- 193 “I think this is the most important news”: Ibid., July 13, 1944, B59-F4.
- 193 “round house with central chassis”: Ibid., August 10, 1944, B59-F4.
- 193 “promote individual liberty”: William F. Buckley Jr., “My Own Secret Right-Wing Conspiracy,” in *Miles Gone By: A Literary Autobiography* (Washington, DC: Regnery, 2004), 503.
- 194 “Well, what are we waiting for?”: “Fuller’s House,” *Fortune*, April 1946, 176. Although the article does not have a byline, it is attributed to George Nelson in Stanley Abercrombie, *George Nelson: The Design of Modern Design* (Cambridge, MA: MIT Press, 2000), 76.
- 194 They returned “triumphant”: RBF, office diary entry, August 19, 1944, B59-F4.
- 194 “Bucky, you may save”: Ibid., September 12, 1944, B59-F4.
- 195 “More than busy”: Lacey to RBF, October 23, 1944, B59-F3.
- 195 “First Day Alone”: Ibid.
- 195 he sounded “wistful”: Lacey to RBF, November 5, 1944, B60-F1.
- 195 “Actually, our having two apartments”: Ibid., December 1, 1944, B60-F2.
- 195 “Darling,” she wrote, “I hope”: AHF to RBF, October 26, 1944, B59-F3.
- 195 Wasserman embarrassed: “Notes by H. Wolf,” April 15, 1945, B61-F5.
- 196 “a card-carrying journeyman-machinist”: RBF, “Continuous Man,” in *BFR*, 350.

- 196 underwriter's "fear of Bucky's suicide": Herman Wolf, year-end report, December 31, 1944, B60-F2, 9.
- 196 "too cramped": William Wasserman to Herman Wolf, February 24, 1945, B61-F3.
- 196 overhead carousel: Marks, 178.
- 196 "huge skies": Lacey to RBF, June 3, 1946, B64-F3.
- 196 train together to Washington: Michaelis, *Best of Friends*, 66.
- 197 "There will be plenty of time": RBF to Noguchi, January 19, 1945, B62-F4.
- 197 "but not if I win": Frank Lloyd Wright, "Ideas for the Future," *Saturday Review of Literature*, September 17, 1938, 14.
- 197 triangulated framework: Marks, 129.
- 197 a wind tunnel: Ibid., 130–31.
- 197 "little ships": "Washington Background," *Philadelphia Inquirer*, March 25, 1946.
- 198 Dymaxion Car #3: For the car's afterlife, see Foster and Glancey, *Dymaxion Car*, 115, and Herman Wolf, interviewed by Terry Hoover and Bill Pretzer, October 25, 2001, Benson Ford Research Center.
- 198 Japanese city of Hiroshima: The essayist Lewis H. Lapham claimed that RBF noted in his calendar that August 6, 1945, was "the day that humanity started taking its final exam" ("Spoils of War," *Harper's*, March 2002). No such entry has been found in the Chronofile.
- 198 no "practical application": RBF, marginalia in *Physical Science* by Sir James Jeans, quoted in Wong, 194n160.
- 198 "No matter how hard": Hatch, 179.
- 198 "As Bucky so aptly puts it": Lacey to Owen Smith, September 14, 1945, B61-F6.
- 199 "liaison between management": "Fuller's House," *Fortune*, April 1946, 174.
- 199 first projection to receive a patent: RBF, *Education Automation*, 19.
- 200 "The stacks of mudguards": RBF, "Designing a New Industry," in *BFR*, 198.
- 200 "mortality point": Ibid., 165.
- 201 "You can sit here": Ibid., 220.
- 201 "Negro press": Policy meeting memo, February 18, 1946, B63-F1.
- 202 "stationary airplane": RBF, "Designing a New Industry," 223.
- 202 Wichita House: The following description is based largely on Marks, 128–41.
- 202 "ovolving" conveyor shelves: Neder, *Fuller Houses*, 79–91. One year earlier, *Life* had publicized a "storage wall" system, without conveyor shelves, designed by RBF's friend George Nelson and the architect Henry Wright ("Storage Wall," *Life*, January 22, 1945, 64–71).
- 202 total price: Mary Roche, "50,000 Homes in '47 Aim of Company," *New York Times*, March 22, 1946, 18.

- 202 “likely to produce”: “Fuller’s House,” *Fortune*, April 1946, 167.
- 202 3,500 orders: Gorman, *Designing for Mobility*, 70.
- 203 predicted in 1927: “Dream House Goes into Production,” *Nesosho (MO) Daily News*, March 22, 1946.
- 203 “When the fin”: “Notes of Harry L. Linsky,” November 29, 1946, B66-F1.
- 203 “Dear Bucky has worked”: RBF to Edward D. Stone, November 15, 1946, B67-F14.
- 203 “the Ides of March”: RBF to J. Arch Butts, January 11, 1948, B67-F22.
- 203 her “beau”: Alexandra Snyder May, interviewed by author, June 7, 2019.
- 203 return to art school: Allegra Fuller Snyder, interviewed by author, March 26, 2019.
- 203 “I just feel”: AHF to RBF, “Friday” (March 29, 1946), B63-F3.
- 204 “just a kid”: Ibid.
- 204 “You have a tendency”: Allegra Fuller to RBF, “Thursday” (March 28, 1946), B63-F3.
- 204 “I know that”: AHF to RBF, “Sunday” (March 31, 1946), B63-F3.
- 204 “giving a surprise party”: Ibid.
- 204 “I think you should know”: Hatch, 181. Herman Wolf provided a somewhat different account of the incident: “So, around that time, Bucky’s wife came out for the first time. And, unfortunately, I was so mad at Bucky that I made some insulting remarks, which she took very personally.” Herman Wolf, interviewed by Terry Hoover and Bill Pretzer, October 25, 2001, Benson Ford Research Center.
- 204 “I just hate that man”: Tony Huston, interviewed by author, April 11, 2019.
- 205 “It was wonderful”: AHF to RBF, Sunday night, March 31, 1946, B63-F3.
- 205 “express desire”: Herman Wolf to staff, memo, April 8, 1946, B532-F4.
- 205 “false agreement”: RBF, note, undated (1948), B532-F4.
- 205 “love and admiration”: Herman Wolf to RBF, April 7, 1946, B532-F4.
- 205 “He never once”: Lacey to RBF, June 17, 1946, B64-F3.
- 205 “opposed as chief policy maker”: RBF to Safford Colby, June 26, 1946, B65-F2.
- 205 “I am experienced”: Ibid.
- 205 “What I was really developing”: Hatch, 180.
- 206 “just not honest”: Ibid.
- 206 “I was forced”: Ibid.
- 206 “Upon completion”: RBF to P. S. Barrows, April 29, 1946, B64-F1.
- 207 “It may be that one”: Ibid.
- 207 “I welcome the opportunity”: RBF to George Nelson, May 9, 1946, B64-F2.
- 207 “a stooge”: RBF to Edward D. Stone, November 15, 1946, B67-F14.
- 207 “People just aren’t”: William Harris to RBF and Herman Wolf, May 17, 1946, B64-F3.
- 208 “arranged to do battle”: RBF to Harris, May 24, 1946, B64-F2.

- 208 “There is no feud”: Ibid.
- 208 offered Wolf his “blessing”: Ibid.
- 208 “put Herman where he belongs”: RBF to Lacey, May 29, 1946, B64-F3.
- 208 “[We] were making small headway”: Lacey to RBF, June 5, 1946, B64-F3.
- 208 rowing catamaran: “Dymaxion Projects,” December 30, 1946, B66-F1.
- 209 lots throughout Wichita: “Ignoring the Past, Embracing Today, Will This Round Prefab Capture Tomorrow?,” *Architectural Forum*, March 1945, 32.
- 209 “just a little”: Lacey to RBF, “Monday night” (June 24, 1946), B64-F3.
- 209 aviation plants out west: Wong, 140.
- 209 “which they may deem necessary”: RBF to Leland O’Neal, June 26, 1946, B65-F2.
- 209 “Remember that almost everyone”: Lacey to RBF, “Monday night” (June 24, 1946), B64-F3.
- 209 “impractical” and “unreasonable”: Ibid., December 13, 1946, B66-F1.
- 209 “The April debacle”: Ibid., November 5, 1946, B66-F1.
- 210 “Is it still round?": AHF to RBF, “Thursday” (June 27, 1946), B64-F2.
- 210 “You had better notify them”: RBF, “Notes of Understanding of R. Buckminster Fuller of Events of and Subsequent to January 25, 1947,” February 15, 1947, B66-F4, 7.
- 210 California client: RBF and Lacey met in Santa Barbara with the executive Burton Tremaine, who was interested in building a house in Arizona. Tremaine introduced them to the architect John Tracey, who met with bankers to discuss production in California or Mexico (correspondence in B65-F3).
- 210 “one nebulous ‘big deal’ after another”: Lacey to Lieutenant Robert C. Strobell, February 19, 1947, B66-F3.
- 211 “an alternate plan”: RBF to Oliver F. Billingsley, February 25, 1947, B66-F3.
- 211 “I’m a very patient guy”: Herman Wolf, interviewed by Terry Hoover and Bill Pretzer, October 25, 2001, Benson Ford Research Center.
- 211 “We may not be able”: Lacey, introduction to “Earth, Inc.,” B527-F3, 3.
- 211 “philosophy resolved”: RBF, “Earth, Inc.,” in *BFR*, 241.
- 211 “Unity is inherently two”: RBF, “Appendix I: Energetic Geometry,” in *Discourse*, 170.
- 211 “someday integrate them”: RBF, notes on College of the Ozarks, 1947, B67-F10.
- 212 Dartmouth Hall: RBF, “Education for Comprehensivity,” in RBF, Eric A. Walker, and James R. Killian Jr., *Approaching the Benign Environment* (New York: Collier Books, 1970), 18–19.

- 213 **“This little man”**: Christian William Miller to Monroe Wheeler, April 22, 1947, Glenway Wescott Papers, Yale University, Beinecke Rare Book and Manuscript Library, Series I, folder 1148. In *When Brooklyn Was Queer* (New York: St. Martin’s Press, 2019), Hugh Ryan suggests that Bill Miller and RBF had “a brief, intense relationship” (226). A review of Miller’s letters suggests that their interactions were confined to this lecture, although he later mentioned “reading some things Mr. Fuller has sent to me” (Miller to Wheeler, July 15, 1947, Glenway Wescott Papers). Miller made no further reference to RBF in his diary (Christian William Miller Papers, Yale University, Beinecke Rare Book and Manuscript Library, Series II—Appointment Books—1944–1969) or his other writings from this period (Christian William [Bill] Miller Photographs and Papers, ONE National Gay & Lesbian Archives, USC Libraries, boxes 44–46).
- 213 **“It was an amphibious plane”**: Cochrane, *Sense of Significance*, 126.
- 213 **“probably the only time”**: Allegra Fuller Snyder, author interview, March 26, 2019.
- 213 **“I must rather count on you”**: Lacey to RBF, May 26, 1947, B68-F5.
- 213 **“The advertising man”**: Mike Goldgar press release, 1947, B67-F16.
- 214 **“Your voice on the phone”**: Lacey to RBF, May 27, 1947, B68-F5.
- 214 **“His intentions are honorable”**: Ibid.
- 214 **“Please be a little more detailed”**: Lacey to RBF, June 4, 1947, B67-F14.
- 214 **George Balanchine**: Hatch, 183. Details confirmed by Jaime Snyder, email to author, April 27, 2021.
- 215 ***The Secret Life of Walter Mitty***: RBF granted permission for a model of the house to be featured as a novelty hat—designed by Irene Sharaff—in the musical number “Anatole of Paris” (Neder, *Fuller Houses*, photo section following 191).
- 215 **“forever grounded this airplane”**: Marks, 141.
- 215 **“the most important prefabricated”**: Pawley, *Buckminster Fuller*, 13.
- 215 **never even managed to patent**: According to Richard Hamilton, a patent for the “Fuller House” (No. 655,601) was filed on March 20, 1946 (Hamilton, “R. Buckminster Fuller: Comprehensive Designer” [unpublished manuscript], “Patents Held by Fuller,” B529-F11). No filing date or reason for abandoning the claim is given in RBF, *Inventions*, 95.
- 215 **“When I return”**: Lacey to RBF, August 19, 1947, B68-F6.
- 215 **“So often while here”**: Ibid., August 25, 1947, B68-F7.
- 216 **in his wallet**: Wallet items, photographs, Series 7, B19-F10.

PART THREE: GREAT CIRCLES

- 217 **“One single picture”**: RBF with Applewhite, *Synergetics*, 87.

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- 219 “When we say ‘we think’”: Ibid., 238.
- 220 “How blind people can be”: Charles Eames to RBF, October 24, 1947, B68-F8.
- 220 “like lungs”: Charles Eames to Cynthia Floyd, December 5, 1947, B68-F10.
- 220 “Ray of course”: Charles Eames to RBF, October 24, 1947, B68-F8.
- 220 considered as a candidate to succeed: Thomas Dyja, *The Third Coast: When Chicago Built the American Dream* (New York: Penguin, 2013), 144.
- 220 László Moholy-Nagy: László Moholy-Nagy to RBF, March 3, 1939, and RBF to Moholy-Nagy, March 6, 1939, B39-V63.
- 220 exhibiting the bathroom: RBF to Serge Chermayeff, February 10, 1944, B58-F1.
- 220 “I had a long talk”: Serge Chermayeff to RBF, July 14, 1947, B67-F20.
- 220 “a public appearance”: RBF to Serge Chermayeff, November 17, 1947, B68-F9.
- 221 “from the hundreds”: Cynthia Floyd to RBF, January 5, 1948, Series 18, B122-F10. Floyd’s letter confirmed RBF’s earlier encounter with Einstein: “When [Straus] mentioned the house Einstein remembered you.”
- 221 “a woeful bit”: RBF to Cynthia Floyd, January 20, 1948, B68-F2.
- 221 “In all humility”: RBF to Albert Einstein, January 17, 1948, in *Discourse*, 171.
- 221 After a standing ovation: Harold and Mary Cohen, interviewed in Al Gowan, *Shared Vision: The Second American Bauhaus* (Cambridge, MA: Merrimack Media, 2012), 26.
- 221 “an unsolved social problem”: RBF to “Smoky” (A. H. Mansbach), February 9, 1948, B67-F18.
- 221 “seating tool”: Abercrombie, *George Nelson*, 110–11.
- 221 “I don’t know to this day”: Ibid., 111. For an alternative account, which attributes the ball clock to the designer Irving Harper, see Sadao, 117.
- 222 “what Archimedes sought”: RBF, “Eureka—Eureka,” April 23, 1948, in *Discourse*, 174.
- 222 “a railroad station”: RBF, “The Comprehensive System,” January 6, 1944, B58-F1, 13.
- 223 “identical axial rotations”: RBF, “Dymaxion Kinetic Vector Structure,” December 15, 1947, reproduced as the frontispiece to *Synergetics*.
- 224 “Atomic Buckalow”: Wong, fig. 2.05a, and Wigley, *Buckminster Fuller Inc.*, 152.
- 225 “triangular intension”: Ibid.
- 225 “spherical mast”: RBF, *Inventions*, 127.
- 226 he tripped, shattering it: Cochrane, *Sense of Significance*, 128–29.
- 226 “[Straus] didn’t believe”: Cynthia Floyd to RBF, May 24, 1948, B68-F18.

- 227 “a greenhouse enclosure”: Serge Chermayeff to RBF, April 28, 1948, B68-F17.
- 227 “private sky”: RBF to Chermayeff, May 26, 1948, B68-F17.
- 227 **Black Mountain College**: Sources on RBF’s first visit to Black Mountain include Hatch, 187–92; Martin Duberman, *Black Mountain: An Exploration in Community* (Garden City, NY: Anchor Press, 1973), 292–304; and Ruth Asawa, “Black Mountain College,” in *Anthology*, 201–4.
- 227 **Theodore Dreier**: Dreier, an engineer, should not be confused with the novelist Theodore Dreiser, whom RBF had encountered separately at Romany Marie’s.
- 227 “the Oedipus complex”: Duberman, *Black Mountain*, 31.
- 227 “The summer artists”: Ibid., 291–92.
- 228 **July 12, 1948**: “Will arrive Monday July 12th” (RBF, notes, 1948, B68-F16).
- 228 “Call me Bucky”: Asawa, “Black Mountain College,” 202.
- 228 “cardboard polyhedra”: Kenneth Snelson, “Snelson on the Tensegrity Invention,” *International Journal of Space Structures* 11, no. 1/2 (1996): 43.
- 228 “unknown, humble”: Sande-Friedman, “Kenneth Snelson and the Science of Sculpture in 1960s America” (doctoral thesis, Bard Graduate Center, 2012), 54.
- 228 “He looks stuffy”: Elaine de Kooning, “de Kooning Memories,” in *Black Mountain College: Sprouted Seeds—An Anthology of Personal Accounts*, ed. Mervin Lane (Knoxville: University of Tennessee Press, 1990), 246.
- 228 **tossed it gently**: RBF to Snelson, March 1, 1980, Series 8, B184-F4.
- 228 “the numbers nine and three”: de Kooning, in *Black Mountain College*, 247.
- 229 “I knew you would”: Ibid.
- 229 **Max Dehn**: Snelson, “Tensegrity Invention,” 44.
- 229 “a great idealist”: Duberman, *Black Mountain*, 295.
- 229 “I love you very much”: Natasha Goldowski to RBF, October 24, 1948, B69-F9.
- 229 “for the least logical way”: de Kooning, in *Black Mountain College*, 248.
- 229 “the eyes of a visionary”: Ibid., 247.
- 229 “Zoroaster speaking Islamic”: Prefatory material to Asawa, “Black Mountain College,” in *Anthology*, 201.
- 229 **affair with Philip Johnson**: Mark Lamster, *The Man in the Glass House: Philip Johnson, Architect of the Modern Century* (New York: Little, Brown, 2018), 109.
- 229 **caravan school**: Dana Miller, “Thought Patterns,” in *Starting with the Universe*, ed. Hays and Miller, 27.
- 229 “liveliness and optimism”: Kenneth Silverman, *Begin Again: A Biography of John Cage* (Evanston, IL: Northwestern University Press, 2012), 74.
- 229 “From the beginning”: John Cage, *Anarchy: New York City—January 1988* (Middletown, CT: Wesleyan University Press, 2001), v.

- 229 “Oh, isn’t that marvelous”: Duberman, *Black Mountain*, 296.
- 230 “Bucky Fuller and his magic show”: Ibid.
- 230 “to rehouse Black Mountain”: George Nelson to RBF, July 16, 1948, B69-F7.
- 231 “a giant’s plate”: Asawa, “Black Mountain College,” in *Anthology*, 203.
- 231 chromosomes of a fruit fly: Sande-Friedman, “Snelson and Science of Sculpture,” 57.
- 231 “critical point”: Duberman, *Black Mountain*, 298.
- 231 “It was predicted to fall down”: Ibid.
- 231 “supine dome”: Prefatory material to Asawa, “Black Mountain College,” 201.
- 231 “Let’s put it together anyhow”: de Kooning, in *Black Mountain College*, 248.
- 231 “I only learn what to do”: John Cage, “An Autobiographical Statement,” 1990, https://johncage.org/autobiographical_statement.html (accessed January 2021).
- 231 taping wooden struts: RBF to Snelson, March 1, 1980, Series 8, B184-F4.
- 231 “gently collapsed”: Marks, 182.
- 231 Rudolf Laban: Asawa, “Black Mountain College,” 202, and Lionel Wolberger, email to author, January 26, 2021. See also Caspar Schwabe, “Eureka and Serendipity: The Rudolf von Laban Icosahedron and Buckminster Fuller’s Jitterbug,” *Proceedings of Bridges 2010: Mathematics, Music, Art, Architecture, Culture*, 271–78.
- 231 James Fitzgibbon: Edward S. Popko, *Divided Spheres: Geodesics and the Orderly Subdivision of the Sphere* (Boca Raton, FL: CRC Press, 2012), 26.
- 232 “I wish you”: RBF to Snelson, March 1, 1980, Series 8, B184-F4.
- 232 “to skip over a discrepancy”: Sande-Friedman, “Snelson and Science of Sculpture,” 56.
- 232 “When I listen to Bucky talk”: Snelson, “Snelson on the Tensegrity Invention,” *International Journal of Space Structures* 11, no. 1/2 (1996): 44.
- 232 “I’m afraid of making a damn fool”: Duberman, *Black Mountain*, 302.
- 232 “We skipped around”: Ibid., 302–3.
- 233 “let me learn to be myself”: Ibid., 303.
- 233 Robert Rauschenberg: Calvin Tomkins, *Off the Wall: A Portrait of Robert Rauschenberg* (New York: Picador, 2005), 23 and 31.
- 233 “tinker toy”: Snelson to RBF, September 9, 1948, B69-F8.
- 233 “Einstein has been searching”: RBF to Snelson, September 18, 1948, B69-F8.
- 233 “a wonderful young protégé”: Cynthia Floyd to RBF, September 22, 1948, B69-F3.
- 233 “might turn out to be”: Sande-Friedman, “Snelson and Science of Sculpture,” 59.

- 234 “He seems to be conducting”: Peter Blake, *No Place Like Utopia: Modern Architecture and the Company We Kept* (New York: W. W. Norton, 1993), 93.
- 234 “What I have just discovered”: Ibid., 94.
- 234 “an incomprehensible sequence”: Ibid.
- 234 “your bebop representative”: RBF to John and Jano Walley, telegram, March 13, 1949, Institute of Design Collection, University of Illinois at Chicago, B7-F216.
- 234 “The next time”: Peter Blake, “The World of Buckminster Fuller,” *Architectural Forum*, January 1972, 49.
- 234 “because he was mixing”: Dyja, *Third Coast*, 149.
- 234 “a Merlin’s cave”: Ibid., 148.
- 234 Mies van der Rohe: Ibid.
- 234 Konrad Wachsmann: Wong, 267–72.
- 235 “packaged house”: Fiona MacCarthy, *Gropius: The Man Who Built the Bauhaus* (Cambridge, MA: The Belknap Press of Harvard University Press, 2019), 403.
- 235 Harold Young: Michael Reid, email to author, May 10, 2021. According to Reid, Young later worked for the Chicago Housing Authority and the Department of Housing and Urban Development in Maryland. In 1963 Young asked RBF for information on domes while conducting planning work in Uganda. See correspondence in B125-F7.
- 235 “kenning space”: Institute of Design project description, spring 1949, B70-F3.
- 235 fog gun: Marks, 99–100.
- 235 “the worst thing”: RBF, *EIK*, session 11.
- 235 venetian blinds covered in cement: Ibid.
- 235 aluminum pans: RBF, “Architecture Out of the Laboratory,” *Student Publication*, University of Michigan, College of Architecture and Design, Spring 1955, 16.
- 235 Necklace Dome: Wigley, *Buckminster Fuller Inc.*, 157–60.
- 236 eight thousand square feet: RBF, “Preview of Building,” in *BFR*, 298–99.
- 236 “The winner will be”: RBF, “Design for Survival—Plus,” in *BFR*, 278.
- 236 Reginald E. Gillmor: Wong, 236.
- 236 “He seemed to be a thinker”: Popko, *Divided Spheres*, 27.
- 236 “a civilian stranger”: RBF to General Follett Bradley, March 25, 1949, B70-F3.
- 236 “as good as a tent”: Ibid.
- 237 “shot to the moon”: RBF, “Moon Structures,” in *SD*, 10974.
- 237 “to dodge widely”: RBF, “Preview of Building,” 294.
- 237 “His car or his train”: Ibid., 295.

- 237 “a super-camping structure”: Ibid., 300.
- 237 “We need only revolve our charts”: Ibid., 287.
- 237 reunited with Cage: Allegra Fuller Snyder, “John Cage Tribute,” <https://www.streamingmuseum.org/post/john-cage-tribute-allegra-fuller-snyder> (accessed April 2021).
- 237 “I felt as though”: Ruth Asawa to RBF, November 1, 1948, B69-F12.
- 237 Fuller designed her a silver ring: Marilyn Chase, *Everything She Touched: The Life of Ruth Asawa* (San Francisco: Chronicle, 2020), 70.
- 238 “How did you solve?”: Snelson to RBF, December 5, 1948, B69-F12.
- 238 “a concentration camp”: Natasha Goldowski to RBF, October 24, 1948, B69-F9.
- 238 instructors from the Institute of Design: The teachers from Chicago included John and Jano Walley; Emerson and Dina Woelffer; and Nataraj Vashi and Praveena Mehta, who taught Hindu philosophy and dance.
- 238 Masato Nakagawa: Dan Brogan, “Decorated WWII vet Masato Nakagawa, 64,” *Chicago Tribune*, May 27, 1983. Nakagawa later worked with the graphic designer Herbert Bayer on the *World Geo-Graphic Atlas*, which featured the Dymaxion Map.
- 238 “I shall be there”: Snelson to RBF, April 28, 1949, B70-F11.
- 238 “Student Dymaxion Designer”: License for Joseph Manulik, May 27, 1949, B70-F2.
- 238 “somewhat escapist”: John and Jano Walley to Daisy Igel and “Polita,” August 2, 1949, quoted in Wong, 240.
- 238 “The Comprehensive Harvester”: RBF, “Comprehensive Designer,” in *Discourse*, 243.
- 238 “Man has now completed the plumbing”: Ibid., 244.
- 239 “by indirection”: Ibid., 245.
- 239 Necklace Dome: The account of the dome’s construction is based on Wigley, *Buckminster Fuller Inc.*, 140–41.
- 240 fiberglass panels: Pawley, *Buckminster Fuller*, 120.
- 241 “When I showed him the sculpture”: Valentín Gómez-Jáuregui, *Tensegrity Structures and Their Application to Architecture* (Santander, Sp.: Cantabria University Press, 2020), 160–61.
- 241 “As I photographed him”: Snelson, “Snelson on the Tensegrity Invention,” *International Journal of Space Structures* 11, no. 1/2 (1996): 46.
- 242 “a special case demonstration”: RBF to Snelson, March 1, 1980, Series 8, B184-F4.
- 242 novel development: Similar structures had been exhibited by the Latvian-Soviet artist Karl Johansson in 1920. Although his work was known to László Moholy-Nagy and Josef Albers, there is no evidence that either Fuller or Snelson were exposed to it during this period. See R. Motro, “Structural Morphology of Tensegrity Systems,” *International Journal*

- of *Space Structures* 11, no. 1/2 (1996): 233–34, and Lionel Wolberger at https://tensegritywiki.com/wiki/Ioganson,_Karl (accessed January 2021).
- 242 “No one else in the world”: Snelson, “Tensegrity Invention,” 46.
- 242 stole it from his room: Ibid.
- 242 two hundred pages long: Duberman, *Black Mountain*, 333.
- 242 Anne had tea: “Bill Treichler Remembers Black Mountain College,” March 2004, <http://www.blackmountaincollegeproject.org/MEMOIRS/TREICHLERwilliamMEMOIR.htm> (accessed May 2021).
- 242 model airplane wheels: Sande-Friedman, “Snelson and Science of Sculpture,” 140. RBF’s version appears in RBF with Applewhite, *Synergetics*, 207.
- 242 “Christ’s Dymaxion disciples”: Sande-Friedman, “Snelson and Science of Sculpture,” 83.
- 242 stopped speaking to Fuller: Duberman, *Black Mountain*, 333.
- 242 “I can see him still”: Hatch, 195.
- 242 “in the selective mutations”: RBF, “Total Thinking,” in *BFR*, 310.
- 243 “not informative but provocative curves”: Ibid., 312.
- 243 “Every night he sleeps”: Charles Olson, *Kyklops II* manuscript, B71-F9, 1.
- 243 “This is not a trip”: Ibid., 2.
- 243 “that filthiest of all”: Charles Olson, *Charles Olson & Robert Creeley: The Complete Correspondence*, vol. 10, ed. Richard Blevins (Santa Rosa, CA: Black Sparrow Press, 1996), 68.
- 243 “In what sense”: Ibid.
- 244 “As nearly as I can tell”: Myron Goldsmith to RBF, August 16, 1949, B70-F19.
- 244 Walter Gropius and László Moholy-Nagy: Martino Peña Fernández-Serrano and José Calvo López, “Projecting Stars, Triangles, and Concrete,” *Architectura* 47 (2017): 35.
- 244 “If the Zeiss engineer”: RBF to Snelson, March 1, 1980, Series 8, B184-F4.
- 245 “Rule I: Never show half-finished work”: RBF, “Universal Requirements of a Dwelling Advantage,” in *BFR*, 269.
- 245 “any tool-up expense whatsoever”: RBF, “Noah’s Ark #2,” in *Discourse*, 213.
- 245 purchased “spontaneously”: Ibid.
- 245 “I am absolutely confident”: Condensed from Hatch, 196.
- 246 “Had she kept it”: Ibid.
- 246 the “overhead”: RBF, “Noah’s Ark #2,” 213.
- 246 “by borrowing on life insurance”: Ibid.
- 246 put up a stunning \$32,000: McAtee, “Geodesic Dreams,” in *Montreal’s Geodesic Dreams*, ed. McAtee, 33.
- 246 “an interlaced network”: Wigley, *Buckminster Fuller Inc.*, 146.
- 246 “involute” shell: Don and Robert Richter and Louis J. Caviani to RBF, May 15, 1950, B71-F11.
- 246 Snelson left: Sande-Friedman, “Snelson and Science of Sculpture,” 65.

- 246 “I knew that if I went to work”: Harold Cohen, author interview, March 6, 2021.
- 246 established by Lindsay: Details of Lindsay’s background and the Montreal branch are based on McAtee, “Geodesic Dreams,” 11–13 and 19–21.
- 247 “I have determined”: Jeffrey Lindsay to Lee A. Hukar, September 13, 1949, B71-F13.
- 247 “You will doubtless understand”: Hukar to RBF, September 21, 1949, B71-F13.
- 247 “Have you lost faith?": RBF to Hukar, July 11, 1949, B71-F7.
- 247 “thoroughly chastened”: Hukar to RBF, July 12, 1949, B71-F7.
- 247 his reputation as a “promoter”: Notes on phone conversation among RBF, Harold Young, and Hukar, September 25, 1949, B71-F13.
- 247 “It is unwise to present”: RBF to Hukar, November 22, 1949, B71-F12.
- 248 “Bucky knows each one of us”: Lindsay to RBF, December 19, 1949, B71-F12.
- 248 underwrite the Necklace Dome: McAtee, “Geodesic Dreams,” 18.
- 248 Cyril Stanley Smith: According to a report on the meeting, Smith “fully understood Bucky’s basic assumptions and nowhere refuted fundamental hypotheses” (Series 18, B129-F7). RBF later claimed that “Smith and others” introduced him to the physical chemist Harold Urey and the physicist Leo Szilard (Applewhite, “Account by R. Buckminster Fuller of His Relations with Scientists,” Series 8, B12-F23, 5).
- 248 “peaceful types”: Lindsay to “Mama” (Hukar), September 9, 1949, B71-F13.
- 248 “firecracker umbrella”: Lindsay to RBF, March 7, 1955, B87-F1.
- 248 he and Fuller installed: Cochrane, *Sense of Significance*, 137.
- 248 invisible gaps, or “windows”: Shoji Sadao, “A Brief History of Geodesic Domes,” in *Anthology*, 25.
- 249 “the psychological factors”: RBF, “Noah’s Ark #2,” in *Discourse*, 215.
- 249 “Beyond certain magnitudes”: Ibid., 207.
- 249 “the brightest man alive”: Hiram Hadyn, *The American Scholar*, Spring 1966, 190. Hadyn dated this discussion to “some twenty years ago (a little more, a little less).”
- 249 “chuckle indulgently”: “Bucky Inc.,” *Time*, November 7, 1949, 57.
- 249 “Continuous Tension”: Itinerary, January 19, 1950.
- 249 recently published book *Dianetics*: John Moehlman to RBF, May 25, 1940, Series 18, B148-F11.
- 249 “an intensive professional course”: W. Bradford Shank to RBF, June 7, 1950, B72-F7.
- 250 lecture the next day: L. Ron Hubbard, *The Technical Bulletins of Dianetics and Scientology*, vol. 1, 1950–1953, 14 (provided to the author by Chuck Beatty). RBF may also have met the science-fiction editor John

- W. Campbell, who was involved at the foundation on a daily basis (Alec Nevala-Lee, *Astounding: John W. Campbell, Isaac Asimov, Robert A. Heinlein, L. Ron Hubbard, and the Golden Age of Science Fiction* [New York: Dey Street, 2018], 270–71).
- 250 **“I cannot continue”**: Don Richter to RBF, August 21, 1950, quoted in Wong, 294.
- 250 **Eleanor and Victor Cannon**: Wong, 189.
- 251 **“If sometimes”**: McAtee, “Geodesic Dreams,” in *Montreal’s Geodesic Dreams*, ed. McAtee, 27.
- 251 **Weatherbreak Dome**: For the dome’s afterlife in the Hollywood Hills, see Dan MacMasters, “A Bubble on a Hilltop,” *Los Angeles Times Home Magazine*, July 1, 1962.
- 251 **“the first convincing proof”**: Lindsay to RBF, March 7, 1955, B87-F1.
- 251 **“a dream come true”**: McAtee, “Geodesic Dreams,” 29.
- 251 **“When the structure was completed”**: RBF, “Architecture Out of the Laboratory,” *Student Publication*, University of Michigan, College of Architecture and Design, Spring 1955, 17.
- 251 **“a message”**: Sadao, “Brief History of Geodesic Domes,” in *Anthology*, 25.
- 252 **triacon grid**: Ibid.
- 252 **Kidd Brewer**: Wong, 292–94.
- 252 **Zane Yost**: Marks, 187.
- 252 **three-quarter sphere**: Ibid.
- 252 **Patrick Baird**: McAtee, “Geodesic Dreams,” 23–25.
- 252 **“totally skeptical”**: Abercrombie, *George Nelson*, 110.
- 252 **Bubble House**: Wong, 278–83.
- 252 **“Every problem”**: Charles Eames to RBF, August 13, 1950, quoted in Wong, 283.
- 253 **“What would Bucky Fuller say?”**: Eames and Eames, *Eames Anthology*, 339.
- 253 **another Dymaxion Car**: Foster and Glancey, *Dymaxion Car*, 210.
- 253 **Richard Hamilton**: Hamilton worked on the book between 1951 and 1957, but died before it could be completed. A partial unpublished draft of “R. Buckminster Fuller: Comprehensive Designer” can be found in B529-F11.
- 253 **“We sparked right away”**: Allegra Fuller Snyder, author interview, March 26, 2019.
- 253 **“He went to her”**: Hatch, 203.
- 253 **casually prejudiced remarks**: See, for example, her reference to “the little Jew boss” at the shop where she worked briefly (AHF to RBF, November 15, 1948, B69-F9).
- 253 **“Mr. Fuller”**: AMS, 93.
- 254 **“Anne gave Bob”**: Hatch, 203.

- 254 around 1970: “An Engineer Sees a Bright Future,” *Independent Record* (Helena, MT), July 8, 1952.
- 254 “imagining that one”: “Fuller Lectures on Motion Trend,” *Kingston (NY) Daily Freeman*, July 25, 1951, 9.
- 254 Spaceship Earth: RBF, *EIK*, session 9. For an early use of the metaphor, see RBF to Harold E. Watson, April 19, 1955, Series 10, B13-F21: “Many a youngster says today: ‘I wonder what it would feel like to be rocketing through Universe in a Space Ship?’ The answer is: ‘What *does* it feel like?’”
- 254 “to assert claims”: Donald Robertson to RBF, July 12, 1951, quoted in Wong, 230.
- 254 “substantially uniform”: RBF, *Inventions*, 130.
- 255 “patented error”: T. C. Howard in Wong, 234n311.
- 255 “a paranoia that seemed”: Wong, 233n309.
- 255 “If I had not taken out patents”: RBF, *CP*, 147.
- 255 “The expense in this one”: “Geodesic Dome,” *Architectural Forum*, August 1951, 147.
- 255 Charles Eames: “We are often apt to think there are no Leonardos today, and as usual we are wrong, because there are. . . . Among such great original thinkers, we must certainly all be grateful for Buckminster Fuller” (Charles Eames, quoted in Richard Hamilton, “R. Buckminster Fuller: Comprehensive Designer,” B529-F11, iii-iv).
- 255 “to develop a portable”: J. T. Lawler to RBF, September 27, 1951, quoted in Wong, 303.
- 256 cotton mill: RBF, *CP*, 323–27.
- 256 put together a test section: Sherman Pardue Jr., *Student Publications of the School of Design*, North Carolina State College, Fall 1952, 7–8.
- 256 Alexander Graham Bell: Wong, 160–62.
- 256 isotropic vector matrix: The octet truss at North Carolina State was described as “the isotropic vector matrix or the tetrahedron truss” (Sherman Pardue Jr., *Student Publications of the School of Design*, North Carolina State College, Fall 1952, 8).
- 256 full octet truss: RBF with Applewhite, *Synergetics* 2, 232.
- 257 construct a plywood dome: Popko, *Divided Spheres*, 27–28, and Katrina Howard Fairley, email to author, January 5, 2021.
- 257 “Anne and I feel”: McAtee, “Geodesic Dreams,” in *Montreal’s Geodesic Dreams*, ed. McAtee, 33.
- 257 “You achieved a far greater effort”: Ibid.
- 257 For his first class: Sadao, 141–43.
- 257 Shoji Sadao: Biographical sources include Neil Genzlinger, “Shoji Sadao, Quiet Hand Behind Two Visionaries, Dies at 92,” *New York Times*, November 13, 2019, and Shoji Sadao, interview with Thomas Devaney,

- Amy Sadao, Elizabeth Asawa, Marty Griggs, and Tsuneko Sadao, November 22, 2015 (provided to the author by Devaney).
- 258 **an ignominious fate on Halloween:** Wigley, *Buckminster Fuller Inc.*, 245–48.
- 258 **revision of the Dymaxion Map:** Sadao, 149.
- 258 **a wire overlay:** AMS, 160.
- 258 **“self-effacing”:** Shoji Sadao, interview with Devaney et al.
- 258 **Niels Diffrient:** Sadao, 145.
- 259 **“Mr. Industry himself”:** Marks, 61.
- 259 **“a very fancy automobile”:** RBF, *EIK*, session 8.
- 259 **worked them out on an envelope:** Robert W. Marks, “The Breakthrough of Buckminster Fuller,” *New York Times Magazine*, August 23, 1959, 42.
- 259 **Bubble House:** Fred M. Taylor, “The ‘Bubble House’ and Other Summer Projects,” *Student Publications of the School of Design*, North Carolina State College, Fall 1952, 20–22.
- 259 **“He may have been a machinist”:** Wong, 271.
- 259 **“[The students] as much as dared”:** Wolfe, *From Bauhaus to Our House*, 57.
- 259 **“Personally, I think”:** George Howe to RBF, December 15, 1952, quoted in Wong, 252.
- 259 **“Roam Home to a Dome”:** RBF, *EIK*, session 11.
- 260 **“I think this was very much”:** K. Michael Hays, “Fuller’s Geological Engagement with Architecture,” in *Starting with the Universe*, ed. Hays and Miller, 19n18.
- 260 **“aesthetic nonsense”:** RBF, “Octet Truss in Yale Art Gallery,” in *SD*, 12293.
- 260 **“Lou and Bucky”:** Daniel López-Pérez, “Postscript: R. Buckminster Fuller and Louis I. Kahn,” in RBF, *World Man*, ed. López-Pérez (New York: Princeton Architectural Press, 2014), 136.
- 260 **“until the whole dome”:** Charles Correa, “Bucky,” in *Anthology*, 254.
- 260 **dome greenhouse:** Wigley, *Buckminster Fuller Inc.*, 182–94.
- 260 **Growth House:** RBF, *CP*, 327–29.
- 260 **a wooden truss dome:** Wigley, *Buckminster Fuller Inc.*, 186–90.
- 260 **University of Oregon:** Ibid., 184–86.
- 260 **Lincoln Laboratory:** Wong, 324–26.
- 261 **alternate grid:** Popko, *Divided Spheres*, 38.
- 261 **Fuller and his students piled into a taxi:** Fred M. Taylor, “The ‘Bubble House,’” 23–24.
- 261 **granted the commission:** Sources on the Ford Rotunda include Marks, 196–98; Sadao, 145–47; Wong, 255–57; and Gorman, *Designing for Mobility*, 124–25.
- 261 **floating it up:** Leo Donovan, “World of Wheels,” *Detroit Free Press*, June 2, 1953.

- 262 **supporting her husband's work:** In an interview earlier that year, AHF claimed that RBF had once conducted an argument "entirely in digits" ("Personality," *Time*, January 19, 1953, 39).
- 262 **Queen Elizabeth II:** Allegra Fuller Snyder, author interview, March 26, 2019.
- 263 **haul away the pieces:** RBF, *EIK*, session 8.
- 263 **"Ford's son and grandson":** RBF, *Grunch of Giants*, 56.
- 263 **atomic bombs:** "Tape, Plastic and Aluminum: Ford Builds a 'Geodesic Dome,'" *Life*, June 8, 1953, 67.
- 263 ***Architectural Forum*:** "Bucky Fuller Finds a Client," *Architectural Forum*, May 1953, 108–12.
- 263 **equivalent of a permanent roof:** Wong, 258.
- 263 **"should be prepared to compete":** Lindsay to RBF, March 7, 1955, B87-F1.
- 264 **"were now friends":** Ibid.
- 264 **"a goddamned shame":** Sadao, 147.

EIGHT: CONTINUOUS TENSION

- 265 **"The most economical":** RBF with Applewhite, *Synergetics*, 656.
- 265 **Fuller drove west:** Sadao, 147–49.
- 265 **"vast amounts of dollars":** RBF, *CP*, 225.
- 266 **Walter Paepcke:** Paepcke had introduced RBF to the designer Herbert Bayer, who met with him in Aspen from 1951 to 1953 (*From the Library of R. Buckminster Fuller*, 32–33). RBF advised Bayer on his *World Geo-Graphic Atlas: A Composite of Man's Environment* (Chicago: Container Corporation of America, printed privately, 1953), which included a Dymaxion Map to display the distribution of "energy slaves" (Eva Díaz, "Dome Culture in the Twenty-first Century," *Grey Room* 24 [Winter 2011]: 86).
- 266 **Woods Hole:** Details of the project are drawn from Robert A. Mohr and Joseph M. Swerdlin, "Making the Woods Hole Dome: The Story of R. Buckminster Fuller's Oldest Geodesic Structure," *Proceedings of the IASS Symposium 2018*.
- 267 **bomb shelter:** Itinerary, May 10–May 20, 1953, and May 25, 1953.
- 267 **"like Douglas Fairbanks":** RBF, *EIK*, session 11.
- 267 **"It cast shadows":** Jack Kniskern, quoted in Mohr and Swerdlin, "Making the Woods Hole Dome."
- 267 **Bear Island:** By this time, Jim Hardie had retired as caretaker, and he died the following year (Marvel, "Hardie Family," in *Bear Island Centennial Book*, 83).
- 267 **"discontinuous compression":** "Building Problems May Be Solved by Princeton Sphere," *Central New Jersey Home News* (New Brunswick), November 15, 1953, 24.

- 267 **Lee Hogden:** Marks, 167.
- 268 **struck by a snowplow:** RBF, *World Design Science Decade 1965–1975, Phase 1, Document 2*, 39.
- 268 **atomic bomb:** “Building Problems May Be Solved by Princeton Sphere,” 24.
- 268 **“I wasn’t there”:** RBF and Dil, *Humans in Universe*, 49.
- 269 **rise into the air:** Marks, 168.
- 269 **hung from the ceiling:** Gorman, *Designing for Mobility*, 183–85.
- 269 **Architectural Forum:** Wong, 305. According to Manuel Bromberg, Lane’s interest was aroused by a model of a dome in James Fitzgibbon’s office (Popko, *Divided Spheres*, 33).
- 269 **Colonel Lane’s plans:** Details on the Marine dome program are drawn from Wong, 303–24, and Henry C. Lane, “A Study of Shelter Logistics for Marine Corps Aviation,” Marine Corps (Air Station, Cherry Point, NC), c. August 1955.
- 269 **“It was no troubles at all”:** “Copter Nabs House; Away It Goes,” *Chicago Tribune*, January 29, 1954, 2.
- 270 **New York Times:** “Marines Try Out Flyable Shelter,” *New York Times*, January 29, 1954, 1.
- 270 **“air-deliverable housing”:** Itinerary, January 28, 1954.
- 271 **“a position of authority”:** RBF to Walter Paepcke, March 19, 1954, Series 4, B2-F3.
- 271 **“You and your university”:** Henry Lane to RBF, May 28, 1954, quoted in Wong, 314.
- 271 **ordered to fly out:** AMS, 135–37.
- 271 **“I already know”:** Marks, “Breakthrough of Buckminster Fuller,” *New York Times Magazine*, August 23, 1959, 44.
- 271 **The Sky Eye:** RBF, *Artifacts of R. Buckminster Fuller*, vol. 3, 206–7, and Baldwin, *BuckyWorks*, 228–29. For its intended use, see Peter Robertson, “An Australian Icon—Planning and Construction of the Parkes Telescope,” proceedings of *Science with Parkes @ 50 Years Young*, October 2012.
- 271 **“the most dramatic”:** Olga Gueft to Peter Muller, May 3, 1954, quoted in Wong, 341.
- 272 **Shoji Sadao was dispatched:** Sadao, 155.
- 272 **“bathing cap”:** Olga Gueft, “2 Cardboard Geodesics from the USA,” *Interiors*, November 1954.
- 272 **Gran Premio:** After the award was announced, the Commandant of the US Marines planned to present it to RBF on behalf of the Italians. To ensure that he retained the primary association with the project, RBF contacted Clare Boothe Luce, who arranged for the prize to be presented by Italian representatives (Wong, 345–46).
- 272 **pool in Aspen:** Marks, 191.
- 272 **Minni-Earth:** Wigley, *Buckminster Fuller Inc.*, 241–45.

- 272 **Flying Seed Pod**: “An Experiment in Quick Construction,” *St. Louis Post-Dispatch*, January 15, 1956.
- 273 **radome group**: Sources on the radome project include Wong, 324–35, and Sadao, 150–52.
- 273 **“opening [his] mail”**: T. C. Howard, quoted in Wong, 327.
- 273 **sign a guest book**: RBF to James Fitzgibbon, September 29, 1954, B128-F7.
- 273 **“beat him down”**: Bernie Kirschenbaum, quoted in Wong, 329.
- 273 **consulted on the Sky Eye**: RBF to “Mr. X,” Series 4, B2-F4. A model of the telescope was built by Jeffrey Lindsay & Associates (“Plastics in Building,” *Architectural Forum*, January 1955, 120).
- 274 **“Your reaction was such”**: Lindsay to RBF, March 7, 1955, B87-F1. In the same letter, Lindsay wrote, “I also had time to consider and analyze your relationships with Ysidore Martinez, Serge Chermayeff, Don Richter, Duncan Stuart, Ken Snelson, George Nelson, Herman Wolf, George Welch, Charles Eames, John Dixon, Jim Fitzgibbon, all of whom I knew more than casually. I subsequently decided that it would be advisable for me not to become directly associated with you in any particular project.”
- 274 **“The Bauhaus international school”**: RBF, “Influences,” 32–33. The essay originated as a January 7, 1955, letter from RBF to John McHale (Series 4, B2-F1).
- 274 **“Let Bucky Fuller”**: Philip Johnson, *Writings* (New York: Oxford University Press, 1979), 103.
- 274 **“the negative stimulus”**: RBF, “Influences,” 23.
- 274 **“one of the most influential”**: RBF, *Inventions*, 302.
- 274 **“I’ve always felt”**: Adapted from RBF, “Later Development of My Work,” in *BFR*, 95. For Salk’s version of the encounter, see Charlotte DeCroes Jacobs, *Jonas Salk: A Life* (New York: Oxford University Press, 2015), 311–12.
- 275 **“pattern integrity”**: RBF, “A Comprehensive Anticipatory Design Science,” in *No More Secondhand God*, 106. The original poem was finished in July 1956 (Series 4, B2-F5).
- 275 **“grateful silence”**: Ibid., 116.
- 275 **concrete block**: Sadao, 152.
- 275 **contract simultaneously**: RBF, *EIK*, session 11.
- 275 **“Oh, Buckling”**: Cochrane, *Sense of Significance*, 142.
- 275 **Morley had died**: Marks, 35.
- 276 **“the first major basic improvement”**: Henry C. Lane, “Study of Shelter Logistics for Marine Corps Aviation,” 1.
- 276 **Fuller and Noguchi**: Sadao, 158. Sadao incorrectly dates the airlift to 1956.
- 276 **The marines ordered several hundred**: James Fitzgibbon to P. E. Peters, March 28, 1959, Series 22, B5-F14.

- 276 **underground bunkers:** Wong, 323.
- 276 **“advantage over our competitors”:** RBF to Major George J. King, September 24, 1955, Series 4, B2-F4.
- 276 **“The cool barrel”:** Ibid., July 10, 1956, Series 4, B2-F5.
- 277 **the “Eskimos”:** RBF, “Continuous Man,” in *BFR*, 361.
- 277 **“Luckily, in 1927”:** Ibid.
- 278 **circumvent his claims:** Wong, 332.
- 278 **“superbly drawn”:** Hatch, 198.
- 278 **policing his rights:** RBF draft letter to T. C. Ryerson, undated (1958), Series 8, B15-F15.
- 278 **“truncatable” grid:** Sadao, “Brief History of Geodesic Domes,” in *Anthology*, 26.
- 278 **“We generated enough money”:** Wong, 334.
- 278 **\$2 million:** Ibid.
- 278 **flurry of spending:** Hatch, 211.
- 279 **“By coincidence”:** RBF to Walter O’Malley, June 14, 1955, reproduced in Brent Shyer, “The O’Malley-Fuller Connection,” <https://www.walteromalley.com/en/features/buckminster-fuller/Page-1> (accessed January 2021).
- 279 **Denver and Minneapolis:** Wong, 400.
- 279 **“skinned with translucent fiberglass”:** RBF to Walter O’Malley, June 14, 1955, reproduced in Shyer, “O’Malley-Fuller Connection.”
- 279 **“built along the lines”:** “The Dodgers’ Dome,” *Sports Illustrated*, October 31, 1955.
- 279 **“one of the wonders”:** “Model of Dodgers’ Proposed Stadium Shown at Princeton,” *Central New Jersey Home News* (New Brunswick, NJ), November 23, 1955, 3.
- 279 **Robert Moses:** Shyer, “O’Malley-Fuller Connection.”
- 280 **“energetic-synergetic geometry”:** “Item—0: An Introduction to the Energetic-Synergetic Geometry of R. Buckminster Fuller,” reproduced in Daniel López-Pérez, *R. Buckminster Fuller: Pattern-Thinking* (Zurich: Lars Müller, 2020), 72.
- 280 **tensional integrity, or “tensegrity”:** The word *tensegrity* was RBF’s preferred term by 1958, when he wrote an essay of the same name (RBF, “Tensegrity,” in *Discourse*, 226).
- 280 **analyze defense systems:** Duncan Stuart to Grady Cox, undated, Series 18, B148-F10.
- 280 **aircraft industry:** John Dixon to “Dean X,” June 30, 1956, reprinted in López-Pérez, *Pattern-Thinking*, 338.
- 280 **retaining all the rights:** Ibid., 339, and Alex Soojung-Kim Pang, “Dome Days: Buckminster Fuller in the Cold War,” in *Cultural Babbage: Technology, Time and Invention*, ed. Francis Spufford and Jenny Uglow (London: Faber and Faber, 1996), 171.

- 280 “Space Ship”: RBF to Harold E. Watson, April 19, 1955, Series 10, B13-F21.
- 280 United Nations: Wigley, *Buckminster Fuller Inc.*, 241, and RBF, CP, 174–75.
- 280 “catenary” dome: RBF, *Inventions*, 162.
- 281 Nelson Rockefeller: Wong, 349.
- 281 “excited as hell”: Jack Masey and Conway Lloyd Morgan, *Cold War Confrontations: US Exhibitions and Their Role in the Cultural Cold War* (Baden, Switzerland: Lars Müller, 2008), 65.
- 281 exhibition in Sweden: Wong, 318–19.
- 282 Canadian pavilion: McAtee, “Geodesic Dreams,” in *Montreal’s Geodesic Dreams*, ed. McAtee, 41–42.
- 282 “a very poor show”: Pang, “Dome Days,” 186.
- 282 “talking chickens”: Jack Masey, quoted in Emma Brockes, “Wait Till You See Our Talking Chickens,” *Guardian* online, last modified September 17, 2008, <https://www.theguardian.com/artanddesign/2008/sep/18/design.jackmasey>.
- 282 “came inside”: Wong, 352.
- 282 “The natives often thought”: RBF, “Continuous Man,” in *BFR*, 348–49.
- 282 “primitive” techniques: Pang, “Dome Days,” 192.
- 282 Sir Halford Mackinder: RBF to Major George J. King, July 10, 1956, Series 4, B2-F5.
- 283 “a logistical Iwo Jima”: Ibid.
- 283 slept on the floor: Roger VanDam, interviewed in Gowan, *Shared Vision*, 86.
- 283 dome on campus: “Huge Dome Studied for SIU,” *Southern Illinoisan* (Carbondale), July 15, 1956, 2.
- 283 Union Tank Car Company: Details of project derived from Wong, 375–86.
- 283 Lake Merritt: “Giant Bird Cage for Lake Merritt,” *Oakland (CA) Tribune*, August 9, 1956, 27E.
- 284 passing Richter’s desk: RBF, *EIK*, session 11.
- 284 Hawaiian Village Hotel: “Kaiser Auditorium to Be 5-Day Job,” *Honolulu Advertiser*, January 5, 1957, 1.
- 285 too late for an inspection: “Kaiser’s Dome Rises Short of 36 Hours,” *Honolulu Star-Bulletin*, January 14, 1957, 13. For the apocryphal version, see Hatch, 206.
- 285 minimum annual royalty: Wong, 393.
- 285 more than a dozen domes: Along with the Honolulu and Moscow domes discussed in the text, the Kaiser domes included auditoriums in Virginia Beach and Borger, Texas (1957); the Vacu-Blast industrial plant in Abilene, Kansas, the Citizens State Bank in Oklahoma City, the Casa

- Mañana Theatre in Fort Worth, and the physical education building at Palomar College in San Marcos, California (1958); the Graham Memorial Auditorium in Pryor, Oklahoma (1959); the Miami Seaquarium, the Palais Des Sports in Paris, the National Orange Show Event Center in San Bernardino, California, and a storage facility at T. F. Green Airport in Warwick, Rhode Island (1960); a Lutheran church in Florida (1961); the Stepan Center at the University of Notre Dame and the Valley National Bank in Tempe, Arizona (1962); and the Aquatarium in St. Petersburg, Florida (1964). List based on online searches, slides in RBF's archive, and photo sections in Marks and in RBF, *Ideas and Integritys*.
- 285 **"We want to be geodesic":** Donald W. Robertson, *The Mind's Eye of Buckminster Fuller* (New York: St. Martin's Press, 1974), 54.
- 285 **"I don't want to mess":** T. C. Howard, quoted in Wong, 378.
- 286 **"dynamic developments":** Alvin Miller to RBF, December 6, 1955, quoted in Wong, 368.
- 286 **entire service division:** James Fitzgibbon to RBF, May 8, 1956, Series 22, B5-F12.
- 286 **Fletcher Jennings:** Lillian McLaughlin, "A Dome-Shaped House, That's What It Is," *Des Moines (IA) Tribune*, May 17, 1957.
- 286 **curtain of warm air:** Robertson, *Mind's Eye of Buckminster Fuller*, 56–57.
- 286 **"pinecone" version:** John McHale, *R. Buckminster Fuller* (New York: George Braziller, 1962), photo caption 73.
- 286 **Korea and the Philippines:** Marks, 218.
- 286 **Matrix Structures:** Lee Jones, "The Playhouse Pop Built," *This Week*, in *Semi-Weekly Spokesman Review* (Spokane, WA), March 3, 1957, 35.
- 286 **"Am I subversive?":** Wong, 355.
- 287 **"the simplest and the best way":** Ibid.
- 287 **USS Leyte:** "Down Comes Dome," *Green Bay (WI) Press-Gazette*, July 13, 1957. Footage appears in *The Love Song of R. Buckminster Fuller* by Sam Green.
- 287 **"The first line of defense":** AHF to Peter Floyd, September 26, 1957, quoted in Wong, 355–56.
- 287 **gala showing:** "'Around the World in 80 Days' Lives Up to Opening Fanfare," *Honolulu Star-Bulletin*, November 2, 1957, 2.
- 288 **"master architect":** Wong, 394.
- 288 **"the biggest ham actor":** Jane King Hession and Debra Pickrel, *Frank Lloyd Wright in New York: The Plaza Years, 1954–1959* (Salt Lake City: Gibbs Smith, 2007), 74.
- 288 **"gentler line of curvature":** Ibid.
- 288 **visited Wright in Scottsdale:** Indira Berndtson, email to author, August 4, 2020.
- 288 **twenty feet across:** RBF, "Later Development of My Work," in *BFR*, 83–84.

- 288 “first of his subsequently multiannual circuits”: RBF, *CP*, 389. Toward the end of his life, RBF claimed that he had traveled more than 3.5 million miles and gone around the world forty-seven times (*ibid.*, 131).
- 288 Spitz Laboratories: “50 to Visit Planetarium,” *News Journal* (Wilmington, DE), July 12, 1957, 6, and Marks, 192.
- 288 Berger Brothers: Marks, 202.
- 288 “moon hut”: Advertisement for American Legion and Swift & Company Space Show, *Boston Globe*, June 10, 1958.
- 288 domed shopping district: Wong, 399–400.
- 289 panels kept shattering: Wigley, *Buckminster Fuller Inc.*, 206.
- 289 “Now, I’ve been talking”: Edgar W. Ray, *The Grand Huckster: Houston’s Judge Roy Hofheinz, Genius of the Astrodome* (Memphis: Memphis State University Press, 1980), 304.
- 289 Fitzgibbon flew out: James Fitzgibbon to RBF, August 29, 1958, B99-F11.
- 289 Richard Lewontin: Popko, *Divided Spheres*, 44.
- 290 operational issues: Wong, 376. After the dome became obsolete, it was sold to Kansas City Southern and demolished in 2007 (*A Necessary Ruin*).
- 290 Graver Tank: Wong, 381–86.
- 290 American Society for Metals: W. L. Russell, “‘Space Dome’ 250 Feet in Diameter,” *Pittsburgh Press*, March 6, 1958, and Marks, 230.
- 290 “buildings are trending”: Strum, *Ideal of Total Environmental Control*, 216.
- 291 hopes of pitching Henry Kaiser: Jefferson Davis Brooks III to William Parkhurst, April 8, 1958, Series 22, B5-F15.
- 291 Chao Phraya River: RBF, *CP*, 21–22.
- 291 he acquired a toy ball: *Indlu Geodesic Research Project*, 9 and 22.
- 291 Nehru was her husband: RBF to AHF, April 16, 1958, B99-F10.
- 291 “He doesn’t like people”: RBF, *EIK*, session 7. RBF’s exact words were “and don’t go see [*sic*] the Taj.”
- 291 “nearly five hours”: Indira Gandhi to Dorothy Norman, April 17, 1958, quoted in Jairam Ramesh, *Indira Gandhi: A Life in Nature* (London: Simon & Schuster India, 2019, EPUB ed.), 74.
- 292 after twenty minutes: RBF, *EIK*, session 7.
- 292 suffering from exhaustion: “Nehru Sets Stage for Stepping Down?,” *Cincinnati Enquirer*, April 13, 1958, sec. 2, 30.
- 292 hour and a half: Hatch, 215.
- 292 whenever he was in the country: RBF worked around this time on a proposal for a factory “for housing the poor people of India,” with domes produced on an assembly line and flown by helicopter (Bob Stubenrauch, letter to *New York Times*, October 18, 1993). For Monsanto’s interest in domes for India, see Wong, 397 and 442.
- 292 “They were all Zulu boys”: RBF, *EIK*, session 11.
- 292 “If the technician”: *Indlu Geodesic Research Project*, 85.

- 292 “demonstrably effective”: Itinerary, June 4, 1958.
- 293 **Reyner Banham**: In *Theory and Design in the First Machine Age*, 2nd ed. (New York: Praeger, 1967), 326, Banham wrote that the Dymaxion House would have rendered the Villa Savoye by Le Corbusier and Pierre Jeanneret “technically obsolete before design had even begun.”
- 293 **“We find that industrialization”**: RBF, “Later Development of My Work,” in *BFR*, 86–87. RBF’s speech, which was originally delivered at the June 5, 1958, Annual Discourse to the Royal Institute of British Architects, was slightly reworked for publication. The original transcript was printed in the *Journal of the Royal Institute of British Architects* (October 1958).
- 293 **“to build in between the earthquakes”**: Ibid., 88.
- 293 **“You cannot stay out there”**: Ibid., 90.
- 293 **“The minute you were not concerned”**: Ibid., 94.
- 293 **“I am not afraid”**: Ibid., 95.
- 293 **John Huston**: Michaelis, *Best of Friends*, 70.
- 293 **“I hurry to Bear Island”**: Allegra Fuller Snyder, “Bear Island Guest Book,” in *Bear Island Centennial Book, 1904–2004*, 54.
- 293 **Graver Tank was in trouble**: James Fitzgibbon to RBF, March 9, 1959, B102-F8.
- 294 **“refined blacksmithing”**: Wong, 383.
- 294 **manager of the dome program**: The Graver Tank division later contracted to build a geodesic aviary for Busch Gardens in Tampa (“Geodesic Dome Built for Birds at Gardens Here,” *Tampa [FL] Tribune*, March 20, 1960, 5-G).
- 294 **William Zeckendorf**: Wong, 386 and 398–99.
- 295 **Lucilla and her husband, Tom Marvel**: Lucilla Fuller Marvel, interviewed by author, April 18, 2019.
- 295 **Frobisher Bay**: Wong, 425–26.
- 295 **Missouri Botanical Garden**: Ibid., 404–10.
- 295 **took credit for it**: RBF to Ernest G. Friesem, November 11, 1963, quoted in *ibid.*, 414.
- 295 **wagered privately that it would collapse**: Ibid., 329.
- 295 **“a nervous breakdown”**: T. C. Howard, quoted in *ibid.*, 329.
- 295 **“hollowed out balloon”**: RBF, “Tensegrity,” in *Discourse*, 238.
- 295 **“Cloud Nine”**: RBF was using the term “Cloud Nine” to refer to these structures by the midsixties (Ben Gelman, “Will We Live in Sky, on Water or Under Sea?,” *Southern Illinoian* [Carbondale], October 31, 1966, 3).
- 295 **“launching platforms for missiles”**: Calvin Tomkins, “Umbrella Man,” *Newsweek*, July 13, 1959, 87.
- 296 **“to those who lack”**: Alfred North Whitehead, *Science and the Modern World* (Cambridge: Cambridge University Press, 1929), 245.
- 296 **“the self-commissioned architect”**: RBF, “The Comprehensive Man,” in *BFR*, 338.

- 296 **“omnidirectional universal maelstrom”**: RBF, “Introduction to Omni-Directional Halo,” in *No More Secondhand God*, 128.
- 296 **“zone of lucidity”**: RBF, “Omni-Directional Halo,” in *ibid.*, 137.
- 296 **systems theory**: RBF was familiar with the work of the systems theorist Ludwig von Bertalanffy, whom he met at the Conference on World Affairs in Colorado in 1961 (RBF, *Education Automation*, 69).
- 296 **rebranded it as “synergetics”**: This was RBF’s preferred term by the time of his lecture “The Music of the New Life” (*Music Educators Journal*, June 1966, 68, reprinted in *UOO*, 77), which he delivered on December 10, 1964.
- 296 **“My mother was really”**: “R. B. Fuller Lecture at San Quentin Prison,” January 31, 1959, Series 8, B15-F11, 4.
- 297 **“because I was almost”**: RBF, “*Playboy* Interview,” *Playboy*, February 1972, 199.
- 297 **“They were just going to sit”**: *Ibid.*
- 297 **“turning point in our affairs”**: James Fitzgibbon to RBF, March 12, 1959, Series 22, B5-F6.
- 297 **“some of us in Raleigh”**: *Ibid.*
- 297 **American National Exhibition**: Sources include Masey and Morgan, *Cold War Confrontations*, 162–78, and Pang, “Dome Days,” in *Cultural Babbage*, ed. Spufford and Uglow, 188–90.
- 298 **“the big blockbuster”**: Masey, quoted in Brockes, “Wait Till You See Our Talking Chickens,” *Guardian* online, last modified September 17, 2008, <https://www.theguardian.com/artanddesign/2008/sep/18/design.jackmasey>.
- 298 **“information machine”**: Masey and Morgan, *Cold War Confrontations*, 162.
- 298 **“I am thinking”**: “Nikita Likes US Exhibit’s Dome,” *Baltimore Sun*, May 5, 1959.
- 299 **“This dome is very interesting”**: Marks, “Breakthrough of Buckminster Fuller,” *New York Times Magazine*, August 23, 1959, 14.
- 299 **“counter-torquing tetrahedra”**: RBF, *Inventions*, 196.
- 299 **visited Frank Lloyd Wright**: Pedro E. Guerrero, *A Photographer’s Journey*, (New York: Princeton Architectural Press, 2007), 87.
- 299 **“I am an architect”**: RBF, “Frank Lloyd Wright,” in *SD*, 20989.
- 299 **“having a stream”**: Howard J. Brown, interviewed by author, April 29, 2019.
- 299 **“the last of that era”**: RBF, “Frank Lloyd Wright,” in *SD*, 20989.
- 299 **“the instrument man”**: *Ibid.*
- 299 **“with more absolute integrity”**: Marks, “Breakthrough of Buckminster Fuller,” 14.
- 299 **Johnson Wax Research Tower**: David Leslie Johnson, *Frank Lloyd Wright Versus America: The 1930s* (Cambridge, MA: MIT Press, 1994), 168.
- 299 **Price Tower**: Patrick J. Meehan, *Frank Lloyd Wright Remembered* (Washington, DC: Preservation Press, 1991), 40.

- 299 **"I am one of Bucky's patron saints":** "Berkshires Don't Know Wright from Wrong, Frank Lloyd (Who's the Best) Tells Us," *Berkshire Eagle* (Pittsfield, MA), March 14, 1957.
- 300 **"Of all the befriendings":** Wright, *Shining Brow*, 133.
- 300 **"Frank Wright, as the ages go by":** Ibid., 135.
- 300 **"There's no inherent":** Calvin Tomkins, "Umbrella Man," *Newsweek*, July 13, 1959, 86.
- 301 **"a research laboratory":** "R. Buckminster Fuller," *Form Givers at Mid-Century*, 60.
- 301 **a fire broke out:** RBF, *EIK*, session 12, and Marks, "Breakthrough of Buckminster Fuller," 44. Correspondence mentioning the fire appears in B103-F10.
- 301 **flames spread from the kitchen:** The original kitchens in the apartments at 6 Burns Street consisted of large metal wall units invented by the developer Guyon L. C. Earle, who had sold two to RBF for use in the Wichita House (Christopher Gray, "A Forest Hills Find for Fuller's Dymaxion House," *New York Times*, April 17, 1994, sec. 10, 7).
- 301 **"a ramshackle store":** Marks, "Breakthrough of Buckminster Fuller," 44.
- 301 **"the most economical":** "New Light on How Polio Starts," *Observer*, June 21, 1959.
- 301 **Klug and Finch:** Gregory J. Morgan, "Early Theories of Virus Structure," in *Conformational Proteomics of Macromolecular Architecture: Approaching the Structure of Large Molecular Assemblies and Their Mechanisms of Actions*, ed. R. Holland Cheng and Lena Hammar (Singapore: World Scientific, 2004), 25.
- 301 **"Some things never get out of date":** Condensed from transcript of the Kitchen Debate, <https://watergate.info/1959/06/24/kitchen-debate-nixon-khrushchev.html> (accessed January 2021).
- 301 **twelve cultural representatives:** Roscoe Drummond, "US Plans Show in Moscow," *Decatur (IL) Daily Review*, May 29, 1959.
- 301 **"a lot of bows":** Don Richter, quoted in Wong, 415n506.
- 302 **"You see, dear boy":** Blake, *No Place Like Utopia*, 246.
- 302 **"a pair of enormous, thick lenses":** Ibid.
- 302 **purchase the dome:** Masey and Morgan, *Cold War Confrontations*, 157.
- 302 **"We are going to have":** RBF to K. Fulmer, November 23, 1959, quoted in Wong, 359.
- 302 **"in a big way":** RBF, "Continuous Man," in *BFR*, 349.
- 302 **"a kid who had just gotten":** Armand Re, interviewed in Gowan, *Shared Vision*, 106.
- 303 **"They said that I was recognized":** "Fuller Revisited," *New Yorker*, October 10, 1959, 36.
- 303 **"Many a US worker citizen":** RBF, "Continuous Man," 356.

- 303 “Khrushchev is glad”: Ibid., 363–64.
- 303 “He’s not a teacher”: Harold Cohen, author interview, March 6, 2021.
- 304 appointment to the faculty: “SIU Appoints Fuller,” *Southern Illinoisan* (Carbondale), September 20, 1959, 3.
- 304 salary of \$12,000: Hatch, 218.
- 304 Museum of Modern Art: RBF was also featured in a touring show sponsored by *Time* magazine and the American Federation of Arts, “Form Givers at Mid-Century,” which appeared at the Metropolitan Museum of Art (*Form Givers at Mid-Century* [New York: Time, 1959], 60–63).
- 304 modernist emphasis on function: Maria Gough, “Backyard Landing: Three Structures by Buckminster Fuller,” in *New Views on R. Buckminster Fuller*, ed. Chu and Trujillo, 125–27.
- 304 offending Bernie Kirschenbaum: Wong, 238n122. A dome that Kirschenbaum built for Frank Safford in Wading River, Long Island, which became the headquarters of the Simulmatics Corporation, would also be erroneously attributed to RBF (Jill Lepore, *If Then: How the Simulmatics Corporation Invented the Future* [New York: Liveright, 2020], 13). A note in the Stanford finding aid refers to it as the “Kirchenbaum [*sic*] / Dr. Safford Wading River Residence” (Series 12, B22-F11).
- 304 Edison Price, a lighting consultant: Sadao, 163–66.
- 304 including Noguchi: Ibid., 166, and Herrera, *Listening to Stone*, 294.
- 304 Robert W. Marks: Marks had first covered RBF in “Bucky Fuller’s Dymaxion World,” *Science Illustrated*, November 1948.
- 304 “The domes do so much”: Marks, “Breakthrough of Buckminster Fuller,” *New York Times Magazine*, August 23, 1959, 15.
- 305 “weave” entire buildings: Gough, “Backyard Landing,” 128.
- 305 “In effect, the city”: Ada Louise Huxtable, “Future Previewed? Innovations of Buckminster Fuller Could Transform Architecture,” *New York Times*, September 27, 1959, sec. 2, 21.
- 305 “the greatest advance”: Ibid.
- 305 “the newest look”: John Canaday, “Art: New Directions in Architecture,” *New York Times*, September 22, 1959, 78.
- 305 “It could remain exactly where it is”: Ibid.
- 305 “I had been successfully swallowed up”: Snelson, “Tensegrity Invention,” *International Journal of Space Structures* 11, no. 1/2 (1996): 46.
- 305 “cutting him to pieces”: Sande-Friedman, “Snelson and Science of Sculpture,” 67.
- 305 “I was suddenly gripped”: Snelson, “Tensegrity Invention,” 46.
- 306 “Pure jewelry”: Ibid., 47. The dialogue that follows is based on Snelson’s account.
- 306 second exhibit: Gough, “Backyard Landing,” 137.
- 306 *Homage to New York*: Ibid., 131.

- 306 “with the feeling”: Gómez-Jáuregui, *Tensegrity Structures*, 163.
- 306 “All of my structures”: Gough, “Backyard Landing,” 145. RBF included the frame of the 1928 Dymaxion House and a model of the Wichita House deck in a list of “experimental” tensegrity structures (Marks, 164–65). The debate over whether the dome embodied the principle of tensegrity has advocates on both sides. For the negative view, see Wong, 168–69; for a positive case, see Donald E. Ingber, “The Origin of Cellular Life,” *BioEssays* 22 (2000): 1160–61.
- 307 “They became his ideas”: Wong, 173.
- 307 “Ken, old man”: Gómez-Jáuregui, *Tensegrity Structures*, 162.

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- 308 “Only humans play”: RBF with Applewhite, *Synergetics*, 661.
- 308 “believed to be the largest”: “Princeton Has Largest Global Map on Exhibition,” *Central New Jersey Home News* (New Brunswick), April 7, 1960, 12.
- 309 “the gnomes”: Mary Cohen, interviewed in Gowan, *Shared Vision*, 14.
- 309 custom sample cases: Cary O’Dell and Thad Heckman, *Bucky’s Dome: The Resurrection of R. Buckminster Fuller and Anne Hewlett Fuller’s Dome Home in Carbondale, Illinois* (United Kingdom: Arcadia, 2020), 18–19.
- 309 not a single one: RBF’s house eventually inspired the head of the local Student Christian Foundation to buy one as well (“Dome Home Number Two Is Going Up,” *Southern Illinoisan* [Carbondale], May 10, 1960, 2), and several more were purchased by the SIU design department (“Domes for Designers,” *Southern Illinoisan* [Carbondale], December 6, 1960, 12, photo caption).
- 309 “We can do it in a day”: Al Gowan, “R. Buckminster Fuller,” in Gowan, *Shared Vision*, 25.
- 309 construction workers: O’Dell and Heckman, *Bucky’s Dome*, 27–29.
- 310 “coming out of a conch shell”: “Antiques Fit Just Fine in Fullers’ Dome Home,” *Southern Illinoisan* (Carbondale), December 4, 1960. Additional details on the dome’s dimensions and history are drawn from O’Dell and Heckman, *Bucky’s Dome*, 24–57.
- 310 “private motel”: Ben Gelman, “Dome Home, Erected in Day, Is Innovation in Field of Dwelling Design,” *Southern Illinoisan* (Carbondale), April 21, 1960.
- 310 “would be just sort of”: Hatch, 200.
- 310 book in one hand: Jay Baldwin in “Derelict Dome,” 99% *Invisible*, October 25, 2012, <https://99percentinvisible.org/episode/episode-64-derelict-dome> (accessed May 2021).

- 311 **"Bucky was brilliant":** Harold Cohen, interviewed in Gowan, *Shared Vision*, 15.
- 311 **"an ego to match":** Ibid.
- 311 **"generic importance":** Marks, 3.
- 311 **"collaborate with local design":** "Houston Due \$15 Million Dome-Covered Stadium," *Victoria (TX) Advocate*, August 21, 1960. Additional information can be found in the Robert J. Minchew Houston Astrodome Architectural and Engineering Collection, Briscoe Center for American History, University of Texas at Austin, 94–274, box 4.
- 312 **Sotaro Suzuki:** Red McQueen, "Japan Plans Dome Stadium," *Honolulu Advertiser*, October 27, 1960, A14.
- 312 **"ascending suspension":** Sadao, 171, and RBF, *Inventions*, 201–13. See also "Fuller Ready to Put Dome over Baseball Park in Tokyo," *Southern Illinoisan* (Carbondale), April 9, 1961, 5.
- 312 **begin work immediately:** Robertson, *Mind's Eye of Buckminster Fuller*, 70–74.
- 313 **laminar dome:** RBF, *Inventions*, 227–40.
- 313 **Monsanto Chemical Company shipped two hundred:** Itinerary, September 7–September 11, 1961, and McHale, *R. Buckminster Fuller*, 34–35.
- 313 **Describing himself as a "comprehensivist":** RBF, *Education Automation*, 68.
- 313 **"the children of the mobile people":** Ibid., 33.
- 313 **Robert Snyder:** *Sketchbook: Three Americans* (1960) featured RBF, Igor Stravinsky, and Willem de Kooning. Snyder's later films included *Buckminster Fuller on Spaceship Earth* (1971) and *The World of Buckminster Fuller* (1974).
- 313 **Francis Thompson:** "Experimental Movies Lecture Set at SIU," *Southern Illinoisan* (Carbondale), November 9, 1960.
- 313 **"There is no reason":** RBF, *Education Automation*, 51.
- 313 **"You are faced":** Ibid., 48.
- 314 **"the infra- and the ultrasensorial frequencies":** Ibid., 62.
- 314 **"control the invisible events":** Ibid.
- 314 **"A circus":** Ibid., 85.
- 314 **portable dome theater:** The theater was developed by Synergetics Inc. for Ford and the corporate documentary producer Jam Handy (McHale, *R. Buckminster Fuller*, photo caption 87). In addition to its appearance at the Seattle World's Fair in 1962 (RBF, *EIK*, session 9), the Cine-Dome was used for short films at trade fairs ("In Focus," *Detroit Free Press*, January 7, 1960).
- 314 **"delicate occulting membranes":** RBF, *Education Automation*, 87.
- 314 **"generalized computer setup":** Ibid., 88.
- 314 **"any dreamable vision":** Ibid.

- 314 **“a comprehensive understanding”**: “Concepts for SIU Campus Discussed,” *Alton (IL) Evening Telegraph*, June 3, 1961.
- 315 **“you or me”**: RBF, “The Architect as World Planner,” in *Ideas and Integrity*, 254.
- 315 **Monica Pidgeon**: Wigley, *Buckminster Fuller Inc.*, 237.
- 315 **“stuff the results”**: Monica Pidgeon to RBF, December 17, 1962, quoted in Wong, 446.
- 315 **“a facility for displaying”**: RBF, “Proposal to the International Union of Architects,” in *Discourse*, 248.
- 315 **“Al had run the math”**: Hideo Koike, interviewed in Gowan, *Shared Vision*, 96.
- 316 **not “efficient”**: RBF, “Aspension,” in *SD*, 771.
- 316 **“deresonated” tensegrity dome**: For a similar basketry dome built at Carbondale, see Jerry Kinsman, interviewed in Gowan, *Shared Vision*, 112–13.
- 316 **Sunclipse Dome**: Allegra Fuller Snyder, “Bear Island Guest Book,” in *Bear Island Centennial Book, 1904–2004*, 55.
- 316 **the misleading term *sunset***: According to RBF, Bill Wainwright proposed the term *sunclipse*, which suggested the corresponding word *sunlight* for *sunrise* (RBF, “Sunclipse,” in *SD*, 17235).
- 316 **Yonkers Raceway**: Jim McCulley, “Zeckendorf Gives 14M for YR Control Stock,” *New York Daily News*, October 11, 1961, 12.
- 316 **Princess Margaret**: The chandelier was coordinated by Cedric Price and built by James and Gillian Meller (RBF, *Artifacts of R. Buckminster Fuller*, vol. 4, 43). Price later worked on an aviary for the London Zoo influenced by RBF and conceived by Lord Snowdon (Noah Chasin, “Lord Snowdon Co-Designed the World’s Strangest Aviary,” *Garage*, March 5, 2018, https://garage.vice.com/en_us/article/gy8n9y/snowdon-aviary-cedric-price-london-zoo [accessed February 2021]).
- 316 **“poetry in its broadest sense”**: “Chair of Poetry at Harvard,” *Baltimore Sun*, May 18, 1925, 2.
- 316 **“an analytical session”**: Duberman, *Black Mountain*, 303. Penn or Duberman related this session to a nonexistent “honorary degree from Harvard,” which appears to refer to the Norton lectureship.
- 316 **“Medical science”**: RBF, “The Prospect for Humanity,” in *World Game*, 175. The piece, which originally appeared as “Notes on the Future” in *Saturday Review* (August 29, September 19, and October 3, 1964), was adapted from the Norton lectures.
- 317 **Donald Caspar**: Morgan, “Early Theories of Virus Structure,” in *Conformational Proteomics of Macromolecular Architecture*, ed. Cheng and Hammar, 27.

- 317 **toy called Geodestix:** Ian Menzies, "The Chinese Bandits with the Coolie Hats," *Boston Sunday Globe*, April 7, 1963, A-7.
- 317 **"The basic assumption":** D. L. Caspar and A. Klug, "Physical Principles in the Construction of Regular Viruses," *Cold Spring Harbor Symposia on Quantitative Biology* 17 (1962): 1–24.
- 317 **"Somebody told us":** "Fuller Gets Microbiology Idea Credit," *Southern Illinoisan* (Carbondale), February 17, 1964, 14.
- 317 **"comprehensive thinker":** RBF, "Prevailing Conditions in the Arts," in *UOO*, 104.
- 317 **"Any good virologist":** Ibid.
- 317 **"monohex" dome:** Wigley, *Buckminster Fuller Inc.*, 207–8, and RBF, *Inventions*, 214–26. A patent for the design was filed on December 19, 1961.
- 318 **Yomiuri Country Club:** Alfred Wright, "A Domed Club That Will Test the God of Golf," *Sports Illustrated*, November 7, 1966.
- 318 **"relatively uneconomical":** Ray, *Grand Huckster*, 304.
- 318 **"invade" his field:** RBF, *CP*, 392.
- 318 **"modified their designs":** RBF to Walter O'Malley, May 23, 1967, reproduced in Brent Shyer, "The O'Malley-Fuller Connection," <https://www.walteromalley.com/en/features/buckminster-fuller/Page-1> (accessed January 2021).
- 318 **"dome building aspirants":** Ibid., September 7, 1965, reproduced in Shyer, "O'Malley-Fuller Connection."
- 318 **"an engineering blunder":** Al Reinert, "Greetings From the Eighth Wonder of the World," *Texas Monthly*, April 1975, 90.
- 318 **outlook on the whole:** Wong, 394–96. A plan around this time by Cedric Price for a geodesic auditorium in England was never realized ("Briton Picks Up Tips from Buildings Here," *Pittsburgh Post-Gazette*, October 12, 1962, and correspondence in B125-F1).
- 318 **"the number of licensees":** RBF to James Fitzgibbon, October 20, 1961, quoted in Wong, 396.
- 318 **International Union of Architects:** RBF, "Proposal to the International Union of Architects," in *Discourse*, 247.
- 319 **the entire roof ignited:** Robert Pearson and Don Beck, "Ford Rotunda Destroyed by \$16-Million Fire," *Detroit Free Press*, November 10, 1962, 1.
- 319 **weren't written in English:** Mary Cohen, interviewed in Gowan, *Shared Vision*, 14.
- 319 **"problems of intellectual integrity":** RBF, "The Long Distance Trending in Pre-Assembly," in *Ideas and Integrity*, 271.
- 319 **"The Two Cultures":** C. P. Snow originally delivered the talk on May 7, 1959. He revisited the subject in *The Two Cultures: And a Second Look* (Cambridge: Cambridge University Press, 1965), 72–73, in which he

- recommended the study of molecular biology, starting with “the analysis of crystal structure.”
- 320 **“I happen to have secret information”:** Jonathan Williams, *A Palpable Elysium* (New York: Dim Gray Bar, 1997), 134.
- 320 **“their lack of economic experience”:** RBF to Luis G. Brugal, May 29, 1963, B121-F7.
- 320 **“by the students’ own uncoordinated efforts”:** RBF, preface to *World Design Science Decade 1965–1975, Phase 1, Document 1*.
- 320 they became **“enthusiastic”:** Ibid.
- 320 **“a little house”:** RBF, “The Designers and the Politicians,” in *BFR*, 375.
- 320 **“moon house”:** “‘Moon House’ Designed for US Astronauts,” *St. Louis Post-Dispatch*, June 24, 1963. The study also developed computer models and reports on geodesic spheres and the jitterbug transformation, which Joseph Clinton saw as the first new technique for expanding rigid structures “since the time of Archimedes” (Joseph Clinton, interviewed by author, April 4, 2019).
- 321 **“I am your disciple”:** RBF, “McLuhan, Marshall,” in *SD*, 10229.
- 321 **Fuller drank copiously:** Wigley, *Buckminster Fuller Inc.*, 284.
- 321 **“the glorious Bucky”:** *From the Library of Buckminster Fuller*, 80.
- 321 **industry of the future:** Marshall McLuhan to RBF, August 11, 1963, and RBF to McLuhan, August 25, 1963, B122-F6.
- 321 **“technology as creator”:** McLuhan to RBF, September 17, 1964, in Marshall McLuhan, *Letters of Marshall McLuhan*, ed. Matie Molinaro, Corinne McLuhan, and William Toye (Toronto: Oxford University Press, 1987), 309.
- 321 **“a necessity”:** Ibid.
- 321 **“McLuhan has never”:** RBF, “McLuhan, Marshall,” in *SD*, 10229.
- 322 **“the message only”:** RBF, “Revolution in Wombland,” in *Earth, Inc.*, 103.
- 322 **“Bucky is my master”:** RBF, “McLuhan, Marshall,” in *SD*, 10230.
- 322 **the world’s “have-nots”:** *World Design Science Decade 1965–1975, Phase 1, Document 1*, 27–28.
- 322 **“all over”:** RBF, “New Forms vs. Reforms,” in *ibid.*, 53.
- 322 **Fuller appealed unsuccessfully:** RBF, *EIK*, session 12, and RBF to McGeorge Bundy, January 4, 1963, B121-F6.
- 322 **“the positive potentials”:** RBF to August Heckscher, May 20, 1963, quoted in Wong, 448.
- 322 **“was not a free citizen”:** RBF, *EIK*, session 12.
- 322 **arranged for him alone:** Ben Gelman, “He’s Got Plans for the World,” *Southern Illinoisan* (Carbondale), August 15, 1963, 1, and Auchincloss, “Dymaxion American,” *Time*, January 10, 1964, 50.
- 322 **the great “pirates”:** RBF, “World Design Initiative,” in *Discourse*, 266.
- 323 **“We could all live”:** Axel Madsen, *John Huston* (Garden City, NY: Doubleday, 1978), 207.

- 323 *The Bible*: Itinerary, July 21–23, 1964.
- 323 “She loved the idea too”: Auchincloss, “Dymaxion American,” 51.
- 323 “Your work and thought”: Silverman, *Begin Again*, 213.
- 323 a series of public diaries: Donal Henahan, “He Is the American Optimist,” *New York Times Book Review*, September 23, 1973, 34.
- 323 “without doubt the greatest living man”: Silverman, *Begin Again*, 212.
- 323 “the most fascinating”: “Stories Behind the Stories,” *Time* press release, January 1964, B126-F2.
- 323 Fuller’s eyes: AMS, 159.
- 323 “If my life provided”: RBF, letter to the editor, *Time*, January 17, 1964.
- 324 “Today the world”: Auchincloss, “Dymaxion American,” 51.
- 324 “an untrue and arrogant picture”: AHF to Naomi Smith, undated (1964), B126-F2.
- 324 “When dinner was finished”: Harold Cohen, interviewed in Gowan, *Shared Vision*, 30.
- 324 annual income of \$200,000: Rumwell, *Time* profile notes, final take, December 30, 1963, B126-F4. AHF thought that the profile’s reference to his income was “embarrassing,” since she often had trouble paying their mortgage on time (AHF to RBF, January 13, 1964, B126-F2).
- 324 wearing two watches: RBF, *World Man*, 42, and RBF, *Operating Manual*, 130.
- 324 “to protect clusters”: “Students Experience Life in Ghana,” *Chicago Tribune*, April 2, 1964, sec. 2D, 1.
- 324 physicist Vikram Sarabhai: Details of this unrealized deal appear in B126-F10. In 1958 RBF visited Sarabhai’s brother Gautam (RBF to AHF, April 16, 1958, B99-F10), who built a geodesic showroom in Bombay (Marks, 223), followed four years later by the Calico Dome in Ahmedabad (“Plan to Resurrect Calico Dome Under Way,” *Times of India*, November 22, 2017).
- 324 “I like your words”: RBF, *EIK*, session 7.
- 324 “I read every word”: Ibid.
- 325 “I would not think”: Ibid.
- 325 “No one made clearer to me”: RBF to Indira Gandhi, June 1, 1964, B130-F3.
- 325 Robert Moses: Robert Moses to RBF, August 5, 1970, B205-F4.
- 325 “a little automated spaceship”: RBF, “The Prospect for Humanity,” *Saturday Review*, August 19, 1964, quoted in “Spaceship Earth,” in *SD*, 16472.
- 325 “I give up”: Norman Cousins, “The Message Comes Across with Clarity and Love,” *Architectural Forum*, January 1972, 60.
- 325 “absolutely intrigued”: Neva Goodwin (Kaiser), interviewed by author, March 22, 2019.

- invited to the family estate: Ibid.
- “would turn into a twelve-year-old boy”: Michael Denny, interviewed by author, March 22, 2019.
- “Everything I disapprove of”: “White House Party Reveals Pre-Victory Lift,” *Tennessean Sun* (Nashville), October 18, 1964.
- Donald M. Wilson: Donald M. Wilson to RBF, August 14, 1964, B133-F5.
- “Would Buckminster Fuller”: Peter Chermayeff, email to author, January 7, 2022.
- emerged from his “proximity”: RBF to Shoji Sadao, March 16, 1965, Series 7, B19-F1.
- “dictatorial authority”: Ibid.
- “You understand that you are”: Ibid.
- design for the pavilion: Sources include RBF, “World Game: How It Came About,” in *World Game*, 18–19; Sadao 177–78; and Wong, 481–82.
- a huge floor map: “Nations Will Light Up,” *Southern Illinoisan* (Carbondale), February 2, 1964, 21.
- “Let’s Make the World Work”: Ben Gelman, “Fuller Invents Game to ‘Make the World Work’ Properly,” *Southern Illinoisan* (Carbondale), February 9, 1965, 14.
- “its lowest point”: RBF to Ben Hellman, November 29, 1966, quoted in Wong, 480.
- Peter Chermayeff: Peter Chermayeff, email to author, January 7, 2022. See also Peter Chermayeff to RBF, December 29, 1964, B133-F6, and “Memorandum of Cambridge Meeting, December 29, 1964, on U.S. Pavilion for Montreal 1967 World’s Fair,” B133-F7.
- “Peter, I am so tired”: Peter Chermayeff, email to author, January 7, 2022.
- “Let’s do a big dome”: Ibid. See also Masey and Morgan, *Cold War Confrontations*, 318, and Sadao, 178.
- structurally impossible: Réjean Legault, “The Death and Life of Buckminster Fuller’s U.S. Pavilion at Expo 67,” in *Montreal’s Geodesic Dreams*, ed. McAtee, 100.
- “design creativity”: Wong, 491.
- “new establishment”: Susan Sontag, *Against Interpretation*, 298. Originally published as “From New York: Susan Sontag,” in *Mademoiselle*, April 1965.
- components for a tensegrity truss: Robertson, *Mind’s Eye of Buckminster Fuller*, 85–90, and RBF, *Inventions*, 241–47.
- Fuller went “apeshit”: Bill Perk, interviewed by author, March 22, 2019.
- “He was abusive”: Harold Cohen, author interview, March 6, 2021.
- “He relied on other people”: Ibid.
- “He’s not doing any patents”: Robert Williams, interviewed by author, March 20, 2019.

- 329 “I wasn’t a person”: Ibid.
- 329 “This is where I lived”: Studs Terkel with Sydney Lewis, *Touch and Go: A Memoir* (New York: New Press, 2007), 248.
- 329 “Bucky Fuller, Bertrand Russell”: Ibid., 251.
- 329 “filled with hatred”: June Jordan, *Civil Wars* (Boston: Beacon Press, 1981), x. Jordan appears under her married name, June Meyer, in RBF’s itinerary for November 16 and 18, 1964.
- 330 “a form of federal reparations”: Ibid., 24.
- 330 “integration in reverse”: “Cone Sweet Home,” *Southern Illinoisan* (Carbondale), April 18, 1965, 5.
- 330 “Skyrise for Harlem”: Jordan, *Civil Wars*, 25.
- 330 “Instant Slum Clearance”: June Meyer (Jordan), *Esquire*, April 1965, 108–11.
- 330 “for participation by Harlem residents”: Jordan, *Civil Wars*, 26.
- 330 “the most socialized”: RBF, “How to Maintain Man as a Success in Universe,” in *UOO*, 243.
- 330 even “fly-fishing”: RBF, “Prevailing Conditions in the Arts,” in *UOO*, 110.
- 330 “swiftly degeniused”: RBF, “Emergent Humanity,” in *R. Buckminster Fuller on Education*, 86.
- 330 “They call their project”: RBF, “How to Maintain Man as a Success in Universe,” 254.
- 331 “using their heads”: RBF, “Geosocial Revolution,” in *UOO*, 204.
- 331 “when everything else”: RBF, “Design Strategy,” in *UOO*, 335.
- 331 **Arnold J. Toynbee**: “Someone suggested to me that *etherialization* may be a better word [than *ephemeralization*]. However, it is disqualified for my meaning because it is founded on the no longer physically accepted concept of *ether*” (RBF, *CP*, 133). RBF was probably referring to Toynbee, who developed the similar concept of “etherialization” in human society as early as 1934 (Toynbee, *A Study of History*, vol. 3 [London: Oxford University Press, 1934], 174–92).
- 331 **handed the platform over to his own daughter**: Tomkins, “In the Outlaw Area,” *New Yorker*, January 8, 1966, 96.
- 331 “Either war is obsolete”: RBF, “Utopia or Oblivion,” in *UOO*, 282.
- 331 “the more or less freewheeling”: Ibid., 291.
- 331 “Because of the students’ intuition”: Ibid.
- 331 “intoxicated” him: Calvin Tomkins, interviewed by author, March 7, 2019.
- 332 “In the Outlaw Area”: Tomkins, “In the Outlaw Area,” 35–97. According to Tomkins, RBF spent an “unprecedented” seventeen hours on the phone from New Zealand with the fact-checking department (Tomkins, interviewed in *Buckminster Fuller: Thinking Out Loud*).

- 332 “an aesthetic”: Tomkins, “In the Outlaw Area,” 74.
- 332 “the most perceptive”: Ibid., 76.
- 332 “I never work”: Ibid., 85.
- 332 “guinea pig”: Ibid., 64.
- 332 “At the beginning”: Ibid., 90–91.
- 332 “naked and helpless”: RBF, *EIK*, session 3.
- 332 beamed there from elsewhere: RBF, “Brain and Mind,” in *Intuition*, 170. He also raised the possibility of telepathic communication across space and time (ibid., 167–70).
- 333 “disgustingly theorized”: RBF to George N. Buffington, August 31, 1928, in *4DT*, 147.
- 333 question Charles Darwin’s assertion: RBF, *EIK*, session 3, and RBF, *Tetrascroll: Goldilocks and the Three Bears—A Cosmic Fairy Tale* (New York: ULAE / St. Martin’s Press, 1982), 66–67.
- 333 “I gained twenty pounds”: Tomkins, “In the Outlaw Area,” 47.
- 333 chalky low-calorie supplement Metrecal: Jaime Snyder, “Experiments in Food and Festivity,” afterword to *Synergetic Stew*, iii.
- 333 “The cows are eating”: Applewhite, *Cosmic Fishing*, 86.
- 333 “The cut of beef”: Hatch, 240.
- 333 “Hot water would do”: Ibid., 164.
- 334 “After two sweltering hot nights”: Applewhite, *Cosmic Fishing*, 90.
- 334 diet caused “dismay”: Ibid., 86.
- 334 Free Speech Movement at the University of California at Berkeley: RBF, “Learning Tomorrows: Education for a Changing World,” in *R. Buckminster Fuller on Education*, 190.
- 334 Stan VanDerBeek: Dana Miller, “Thought Patterns,” in *Starting with the Universe*, ed. Hays and Miller, 37.
- 334 “the most astounding manner”: Robert Smithson, “Entropy and the New Monuments,” in *The Collected Writings*, ed. Jack Flam (Berkeley: University of California Press, 1996), 21.
- 334 geodesic greenhouse: Mark Matthews, *Droppers: The Story of America’s First Hippie Commune* (Norman: University of Oklahoma Press, 2010), 64.
- 334 “garbage of America”: Felicity D. Scott, “Fluid Geographies: Politics and the Revolution by Design,” in *New Views on R. Buckminster Fuller*, ed. Chu and Trujillo, 170.
- 334 tempting Cadillac: Peter Rabbit, *Drop City* (New York: Olympia Press, 1971), 45–46.
- 334 the inventor of Zomes: Steve Baer in Lloyd Kahn, *Shelter* (Bollinas, CA: Shelter, 1973), 134.
- 335 “some Buck Rogers Indian village”: William Hedgepeth, *The Alternative: Communal Life in New America* (New York: Macmillan, 1970), 153.
- 335 “landed UFOs”: Matthews, *Droppers*, 89.

- 335 “the Dymaxion Award”: Ibid., 165–66.
- 335 “as your own local industry”: John McHale to Peter L. Douthit (Peter Rabbit), November 9, 1966, quoted in Scott, “Fluid Geographies.”
- 335 “was apparently home”: Memorandum, October 16, 1965, FBI file on RBF.
- 335 **Victor Lessiovski**: In an undated letter from 1964, John McHale wrote to Bill Perk, “I have now forwarded at your suggestion copies of the two [World Design Science Decade] documents to Mr. Victor Lessiovsky [sic] at the U.N., and mentioned that you had asked that we might do so” (B151-F9). Lessiovski wrote to McHale on June 4, 1964, to confirm receipt of the reports and state that he was meeting with RBF (B130-F1). Their June 21, 1964, meeting in Carbondale is recorded in RBF’s itinerary. RBF’s contact is called “a KGB employee” in a May 27, 1965, memo in his FBI file, and Lessiovski was named publicly as a KGB officer in John Barron, *KGB: The Secret Work of Soviet Secret Agents* (New York: Reader’s Digest Press, 1974), 19–20.
- 335 “influence operations”: John Barron, *Operation Solo: The FBI’s Man in the Kremlin* (Washington, DC: Regnery History, 1996), 265.
- 335 “inducing influential foreigners”: Ibid.
- 335 “playing politics”: Memorandum, October 16, 1965, FBI file on RBF.
- 335 **alternative to Marxism**: RBF claimed that if he had attended the UIA convention in Havana, his plans “might possibly have become adopted by Cuba in lieu of communist ideology” (RBF to W. R. Ewald Jr., November 6, 1963, quoted in Wong, 449), and he felt that his public appearances had ended “the political question of a communist Japan” (Rumwell, *Time* profile notes, final take, December 30, 1963, B126-F4).
- 336 “geosocial revolution”: Memorandum, October 16, 1965, FBI file on RBF.
- 336 “by rocket ship”: RBF, “Keynote Address at Vision 65,” in *UOO*, 124.
- 336 “How to Make the World Work”: Ibid., 125.
- 336 **concentric spheres**: Thomas Turman, interviewed by author, August 6, 2020.
- 336 “the biggest game”: John Cage, *A Year from Monday: New Lectures and Writings* (Middletown, CT: Wesleyan University Press, 1969), 165.
- 336 “chilly machine”: RBF, *Pound, Synergy, and the Great Design* (Moscow, ID: University of Idaho, 1977), 18.
- 336 **lowered over him**: Turman, author interview.
- 336 “To me, it is the most beautiful”: RBF, *EIK*, session 10.
- 336 “critical path”: “Next Step: ‘Shaping’ of Fair Site Islands,” *Gazette* (Montreal), May 14, 1964.
- 336 **The method directly guided the construction**: Peter Floyd to Jack Masey, February 26, 1965, B133-F12.
- 336 “high performance per unit”: RBF, “Aesthetics,” in *SD*, 202.
- 336 “The aesthetics of such an undertaking”: Ibid.

- 337 “designed for visual impact”: Shoji Sadao to Samuel Spencer, April 20, 1966, B144-F4.
- 337 hybrid design: Sadao, 178–79, and Legault, “Death and Life of Buckminster Fuller’s US Pavilion at Expo 67,” in *Montreal’s Geodesic Dreams*, ed. McAtee, 97–101.
- 337 no construction drawings: Hatch, 242. Many drawings for the Montreal Expo Dome appear in RBF, *Artifacts of R. Buckminster Fuller*, vol. 4, 103–38.
- 337 “star tensegrity” truss: RBF, *Inventions*, 248.
- 337 “completely interchangeable”: RBF, *EIK*, session 11.
- 337 “He was always careful”: Shoji Sadao, interview with Thomas Devaney, Amy Sadao, Elizabeth Asawa, Marty Griggs, and Tsuneko Sadao, November 22, 2015. Provided to the author by Devaney.
- 337 Félix Candela: Félix Candela, *Seven Structural Engineers: The Félix Candela Lectures*, ed. Guy Nordenson (New York: Museum of Modern Art, 2008), 10–11.
- 337 “one of the prophetic voices”: Roszak, *From Satori to Silicon Valley*, 18.
- 337 inadvertent pollination: RBF, “Geosocial Revolution,” in *UOO*, 165–66.
- 337 “The drive in humanity”: RBF, “Sex,” in *SD*, 16003. Baldwin stated that RBF believed that the “increase of homosexuality, and (especially) bisexuality, were natural evolutionary developments” (*BuckyWorks*, 82).
- 338 “an array of multisensory enhancements”: Katz, *Make It New*, 128.
- 338 “We’re inside Bucky’s brain!”: Ibid.
- 338 “the final and most spectacular”: Roszak, *From Satori to Silicon Valley*, 19.
- 338 Salvador Dalí: The dome for the Dalí Theatre and Museum in Figueres, Spain, was designed by Emilio Pérez Piñero (José Calvo López and Juan Pedro Sanz Alarcón, “Folding Architecture for an Astonishing Decade,” *EGA: Revista de expresión gráfica arquitectónica* [January 2011]: 124).
- 338 “brief affair”: Linda Hamalian, *The Cramoisy Queen: A Life of Caresse Crosby* (Carbondale: Southern Illinois University Press, 2009), 187.
- 338 “an international peace center”: Ibid., 188–89.
- 338 “to cross the line”: CDNS, “Widow Tries Cyprus as Site for a World Peace Center,” *Cincinnati Enquirer*, June 28, 1966, 14.
- 338 persuading Cyprus: RBF, *CP*, 394.
- 339 “I feel our undertaking”: RBF to Caresse Crosby, January 26, 1967, B152-F6.
- 339 “no physical device”: Sadao, 187.
- 339 The final plan: Pawley, *Buckminster Fuller*, 162, and RBF, *CP*, 337–40.
- 339 “almost indecipherable”: Sadao, 188.
- 339 annual fee of \$25,000: Hidetoshi Shibata to RBF, June 5, 1967, B158-F7.
- 340 “big enough to entomb”: Lewis Mumford, “Autocratic Technocracy”

- image caption, *The Pentagon of Power* (New York: Harcourt Brace Jovanovich, 1970).
- 340 **Minnesota Experimental City:** Steve Rose, “Minnesota Experimental City: The 1960s Town Based on a Comic Strip,” *Guardian* online, November 5, 2018, <https://www.theguardian.com/cities/2018/nov/05/minnesota-experimental-city-the-1960s-town-based-on-a-comic-strip>.
- 340 **politically frustrating:** RBF to Otto A. Silha, February 14, 1978, B360-F8.
- 340 **Who’s Who in America:** Applewhite, *Cosmic Fishing*, 2.
- 340 **no longer informed:** For example, Sadao was obliged to tell RBF that his understanding of the truss used in the dome was incorrect: “Sepias for your signature will be arriving soon, which will give you a complete description of the structure” (Shoji Sadao to RBF, March 2, 1966, B143-F8).
- 340 **Tetrahelix Inc.:** “3 Firms Chartered by State,” *Asheville (NC) Citizen-Times*, February 25, 1967, 17.
- 340 **“perhaps a prototype”:** David Jacobs, “An Expo Named Buckminster Fuller,” *New York Times Magazine*, April 23, 1967, 237.
- 340 **Fuller told reporters:** “Bubble Stays Put,” Across Canada, *Ottawa Journal*, April 24, 1967, 14.
- 341 **“after almost no personal involvement”:** Peter Chermayeff, email to author, January 7, 2022.
- 341 **“treated badly”:** Ibid.
- 341 **“It was a great privilege”:** Ibid.
- 341 **“skybreak bubble”:** Fuller & Sadao report, “The United States Pavilion for the Montreal World’s Fair,” 1967, B136-F4.
- 342 **sunshade system:** Wong, 484, and Baldwin, *BuckyWorks*, 169.
- 342 **“should it ever have to be shown”:** Jasper Johns to RBF, January 23, 1967, quoted in Dana Miller, “Thought Patterns,” in *Starting with the Universe*, ed. Hays and Miller, 35.
- 342 **“of offering any of it to me”:** RBF to Calvin Tomkins, October 6, 1982, quoted in *ibid.*, 40.
- 342 **“an official acknowledgement”:** Andy Warhol and Pat Hackett, *POPism: The Warhol Sixties* (Orlando, FL: Harvest Book / Harcourt, 1980), 277.
- 342 **Umberto Eco:** In *The Picture History of Inventions: From Plough to Polaris*, trans. Anthony Lawrence (New York: Macmillan, 1963), 258, Eco and G. B. Zorzoli had identified Joseph Paxton’s Crystal Palace “as the main source of inspiration for such modern constructions as Fuller’s famous cupolas.” RBF challenged this association in a hostile review, in which he dismissed Eco as an “aesthete” (“Dissonant Chords on a Grand Piano,” *Book Week*, February 9, 1964).
- 342 **“The dome was aesthetically”:** Umberto Eco, *Travels in Hyperreality: Essays*, trans. William Weaver (San Diego: Harvest/Harcourt, 1986), 302.

- 342 “The US building at Expo”: Blake Gopnik, *Warhol* (New York: Ecco, 2020), 553–54.
- 342 His office had lost money: Shoji Sadao to RBF, March 2, 1968, B169-F1.
- 343 “validation to the extraordinary backing”: Hatch, 243.
- 343 “I have inadvertently”: Ibid., 244.
- 343 “This gets continually worse”: RBF to John Fistere, June 6, 1967, B158-F8.
- 344 “very slow but satisfactory”: Itinerary, May 14, 1967.
- 344 carried in his briefcase: “Contents of BF’s taupe suede briefcase,” Series 4, B8-F7.
- 344 “Anne is a woman”: Gene Fowler to RBF, June 13, 1967, B158-F8.

PART FOUR: WORLD GAME

- 345 “What is the minimum number?”: RBF with Applewhite, *Synergetics*, 238–39.

TEN: WHOLE EARTH

- 347 “It is like the childhood game of Twenty Questions”: Ibid., 268. RBF borrowed the use of Twenty Questions to approach design problems from Harold Cohen (Cohen, author interview, March 6, 2021, and Roger Van Dam and Steven Poster, interviewed in Gowan, *Shared Vision*, 86 and 122).
- 348 hated violent movies: Harold and Mary Cohen, interviewed in Gowan, *Shared Vision*, 26.
- 348 “the twentieth century’s”: Bruce Weber, “Priscilla Morgan, Cultural Matchmaker, Dies at 94,” *New York Times*, April 3, 2014, 25.
- 348 local historical society: “Menotti Fete Opens on a Quieter Note,” *Los Angeles Times*, July 1, 1967, pt. 3, 9.
- 348 documentary on Fuller: Robert Snyder, in AMS, 167.
- 348 complimentary reference to “Buckie”: *Canto XCVII*: “The artigianato bumbles into technology, / ‘Buckie’ has gone in for structure (quite rightly) / but consumption is still done by animals.”
- 348 “a parallel manifestation”: J. Gocar to RBF, January 24, 1967, quoted in Wong, 450.
- 348 Victor Papanek and Armi Ratia: Yrjö Sotamaa, email to author, March 16, 2019.
- 349 Bloomsbury Square: Daniel López-Pérez, *Fuller en México: La Iniciativa Arquitectónica* (Mexico City: Arquine, 2015), 162–63.
- 349 thickened arteries: Dr. Douglas Rosedale to RBF, July 19, 1967, B159-F7.
- 349 raw sea urchins: Jaime Snyder, “Experiments in Food and Festivity,” afterword to *Synergetic Stew*, iv. RBF’s great-niece Deirdre Newman

- recalled that John Cage and Merce Cunningham hunted for mushrooms on a separate visit to Bear Island (*New York Mycological Society Newsletter*, Summer 2013).
- 349 **“rowing needles”**: RBF, *Inventions*, 257–58. Moore is credited for the prototype in Lord, *Pilot for Spaceship Earth*, 150.
- 349 **moving the Expo Dome**: “World Center Plan Awaits OK,” *Southern Illinoisan* (Carbondale), July 16, 1967, sec. 5, 1.
- 349 **\$4 million of state bonds**: “Kerner Approves Bill for Resources Center,” *Southern Illinoisan* (Carbondale), September 11, 1967.
- 349 **“It would be pretty much a detective game”**: RBF to John Huston, September 27, 1967, Calvin Tomkins Papers, Museum of Modern Art, folder I.4.
- 349 **“Maoris sailing between the islands”**: Calvin Tomkins to John Huston, October 9, 1967, Calvin Tomkins Papers, Museum of Modern Art, folder I.4.
- 350 **American Institute of Planners**: E. J. Applewhite in RBF, *SD*, xxvi.
- 350 **“I’ve often heard people say”**: RBF, *Operating Manual for Spaceship Earth*, 46–47.
- 350 **“the number of forward days”**: *Ibid.*, 86.
- 350 **“You may very appropriately”**: *Ibid.*, 132.
- 351 **“at the outset”**: RBF to Dale Klaus, February 9, 1970, quoted in *SD*, xxxiii.
- 351 **USCO, an experimental collective**: Stewart Brand interview, *The Tim Ferriss Show*, February 3, 2018, <https://tim.blog/2018/02/03/the-tim-ferriss-show-transcripts-stewart-brand> (accessed January 2021).
- 351 **“an Indian freak”**: Tom Wolfe, *The Electric Kool-Aid Acid Test* (New York: Bantam Books, 1969), 10.
- 352 **“I was bored”**: Stewart Brand interview, *The Tim Ferriss Show*, February 3, 2018.
- 352 **“Why haven’t we seen”**: *Ibid.*
- 352 **only one to reply**: Stewart Brand interview with Massive Change Radio, <https://www.yumpu.com/en/document/view/5742799/bruce-mau-design-stewart-brand-interview-25-massive-change> (accessed January 2021).
- 352 **“powerful tools technology”**: Stewart Brand to RBF, November 21, 1967, quoted in Wong, 458.
- 352 **“Oh, yes, I wrote to that guy”**: Stewart Brand interview with Massive Change Radio.
- 353 **Fuller advised him**: Stewart Brand to RBF, January 3, 1968, B152-F5, and April 10, 1968, B172-F6.
- 353 **“You’re right”**: Peter Collier, “Drop-Out’s How-To,” *New York Times Book Review*, March 7, 1971, 8.
- 353 **“The program is operational”**: Stewart Brand to RBF, January 3, 1968, B152-F5. RBF had previously received a report from Don Moore that

- described Engelbart's research on using computers to navigate "conceptual space" (Moore to RBF, January 22, 1965, B134-F5).
- 353 **South Carolina Tricentennial Commission:** Margaret Shannon, "Like Nothing Else in the World," *Atlanta Journal and Constitution Magazine*, October 3, 1971; drawings in RBF, *Artifacts of R. Buckminster Fuller*, vol. 4, 181–91.
- 353 **his patron died:** RBF, *CP*, 333.
- 353 **"He wants to do it better":** David Jacobs, "An Expo Named Buckminster Fuller," *New York Times Magazine*, April 23, 1967, 237.
- 353 **"several grave misunderstandings":** Shoji Sadao, "Buckminster Fuller's Floating City," *Futurist*, February 1969.
- 354 **Triton City:** Sadao, 190–91, and RBF, *CP*, 332–35.
- 354 **estimated cost per resident:** "U.S. Agency Comments on 'Floating Cities,'" *Southern Illinoisan* (Carbondale), December 27, 1968, 2.
- 354 **Nixon's election:** RBF, *CP*, 334.
- 354 **Gerald Gladstone:** Mark Osbaldeston, *Unbuilt Toronto: A History of the City That Might Have Been* (Toronto: Dundurn Press, 2008), 39.
- 355 **"second order metropolitan area":** Ibid., 42. RBF and Sadao revisited some of their concepts for Toronto in an unrealized proposal for a megastructure in Pearland, Texas (RBF, *Artifacts of R. Buckminster Fuller*, vol. 4, 233–34).
- 355 **Cinerama dome:** Don Kirkland, "Freeway Signs Built at Torrance," *Independent Press-Telegram* (Long Beach, CA), January 24, 1965.
- 355 **"to reform the environment":** RBF, "What I Am Trying to Do," *Saturday Review*, March 2, 1968, 13.
- 355 **American Association of Neurological Surgeons:** RBF, "Brain and Mind," 77–171. After meeting the psychologist B. F. Skinner, RBF noted, "I observe that he does not differentiate between brain and mind" (RBF, "Skinner, B. F.," in *SD*, 16235). He owed the introduction to Harold Cohen, who went on to conduct research on operant conditioning at the Institute for Behavioral Research in Maryland, where RBF served in "an unpaid, intermittent consult. function" (Itinerary, March 19, 1965). RBF discussed these experiments in "The Music of a New Life," in *UOO*, 31–32, and in his foreword to Harold Cohen and James Filipczak, *A New Learning Environment: A Case for Learning* (San Francisco: Jossey-Bass, 1971), xi–xvi.
- 355 **Dick Cavett joked:** "Yuk Among the Yaks," *Time*, March 22, 1968.
- 355 **Sun Dome:** Charles E. Rhine, "Amazing Sun Dome You Can Build," *Popular Science*, May 1966, 108–12.
- 356 **"the work of small time ingrates":** Steve Baer, *Dome Cookbook*, 5th printing (Corrales, NM: Lama Foundation, 1970), 8.
- 356 **"long dying and funeral":** Brand, *Last Whole Earth Catalog*, 439.

- 356 **Barbara Ward:** Ward credited the book's title to RBF: "I borrow the comparison from Professor Buckminster Fuller" (*Spaceship Earth* [New York: Columbia University Press, 1966], 15).
- 356 **"Amid the fever I was in":** Brand, *Last Whole Earth Catalog*, 439.
- 356 **"Techniques and tools":** Ibid.
- 356 **"I dunno, *Whole Earth Catalog*":** Ibid.
- 356 **"with manufacturers":** Stewart Brand to RBF, April 10, 1968, quoted in Wong, 454.
- 357 **"We are as gods":** Stewart Brand, *Whole Earth Catalog*, Fall 1968, 3.
- 357 **"access to tools":** John Markoff, *Whole Earth: The Many Lives of Stewart Brand* (New York: Penguin, 2022), 138.
- 357 **"People who beef about Fuller":** Stewart Brand, *Whole Earth Catalog*, Fall 1968, 3.
- 357 **"one of the most original":** Ibid.
- 357 **"baling wire hippies":** J. D. Smith, quoted in Andrew G. Kirk, *Counterculture Green: The Whole Earth Catalog and American Environmentalism* (Lawrence: University Press of Kansas, 2007), 76.
- 357 **On December 9, 1968, Brand assisted:** Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2010), 110.
- 358 **center for futures studies:** Jenny Andersson, *The Future of the World: Futurology, Futurists, and the Struggle for the Post-Cold War Imagination* (New York: Oxford University Press, 2018), 202.
- 358 **"the Spaceship Earth Game":** John McHale, *The Future of the Future* (New York: Ballantine Books, 1969), 279.
- 358 **World Game:** "CU Confab on World Affairs Set Monday," *Colorado Springs (CO) Gazette-Telegraph*, April 9, 1967. The term had been used in RBF's circle for at least two years (Don Moore to RBF, January 22, 1965, B134-F5).
- 358 **"realizing a lifestyle":** RBF, *CP*, 191.
- 358 **"The young will lead the old":** RBF, "Self-Debiasing," in *SD*, 15750.
- 359 **"They are wondering if you":** Pat White to RBF, February 17, 1969, Series 18, B133-F9.
- 359 **Paul McCartney:** "The Mad Day Out: Location Seven," *The Beatles Bible*, July 23, 2018, <https://www.beatlesbible.com/1968/07/28/the-mad-day-out-location-seven> (accessed May 2021).
- 359 **would be "delighted":** RBF to John Lennon, telegram, February 26, 1969, Series 18, B133-F9.
- 359 **"Dr. Fuller found [it]":** Constance Abernathy to John Lennon and Yoko Ono, April 4, 1969, Series 18, B133-F9. RBF's office was later in touch with Yannis "Magic Alex" Mardas, the head of technology for the Beatles, but no project resulted (Series 18, B133-F9).

- 359 **"I have learned"**: RBF testimony before the Senate Subcommittee on Intergovernmental Relations, March 4, 1969, reprinted in RBF, *World Game*, 25.
- 359 **Herbert Matter**: Itinerary, various dates, February 6–April 4, 1969.
- 360 **found the experience "transformative"**: Schlossberg, author interview, March 27, 2019.
- 360 **stealing his ideas**: RBF to John Lloyd, March 21, 1969, B184-F1, and Amei Wallach, introduction to RBF, *Tetrascroll*, xii.
- 360 **"That seems really interesting"**: Schlossberg, author interview.
- 360 **thought that he was "insane"**: Ibid.
- 360 **"I don't know who you are"**: Ibid.
- 360 **"That I could survive it"**: Ibid.
- 360 **had forgotten Schlossberg completely**: Ibid.
- 361 **he was "exaggerating"**: Alexandra Snyder May, author interview, June 7, 2019.
- 361 **"an incredible list of freaks"**: Peter Rabbit, *Drop City*, 131.
- 361 **"He brought it all together"**: Ibid., 144.
- 361 **"my continued interest"**: Edwin Schlossberg to RBF, undated (1968), B175-F6.
- 361 **New York Studio School**: Details of the World Game workshop are derived primarily from *World Game Report*, New York Studio School of Painting and Sculpture, 1969.
- 362 **"You're in charge"**: Schlossberg, author interview.
- 362 **"It was really fun"**: Ibid.
- 362 **for the "disaster"**: Mercedes Matter to RBF, July 6, 1969, B188-F3.
- 363 **audio message**: Itinerary, June 27, 1969.
- 363 **"as the degree of gravitational hazard"**: RBF, "Vertical Is to Live, Horizontal Is to Die," in *Discourse*, 281.
- 363 **Kurt Vonnegut and Arthur C. Clarke**: 10:56:20 PM EDT 7/20/69, 102.
- 363 **enter environmental design**: Stephen E. Selkowitz, interviewed by author, March 13, 2019.
- 363 **"They looked like"**: John Cage, "Diary: How to Improve the World (You Will Only Make Matters Worse)," in *Liberations: New Essays on the Humanities in Revolution*, ed. Ihab Hassan (Middletown, CT: Wesleyan University Press, 1971), 20.
- 363 **"bare maximum"**: "I. Pre-Scenario Facts," *World Game Report*, New York Studio School of Painting and Sculpture, 1969.
- 363 **"not his minimum potential"**: Ibid.
- 363 **"our first move"**: "II. Scenario," *World Game Report*, New York Studio School of Painting and Sculpture, 1969.
- 363 **"I feel"**: Edwin Schlossberg, "World Game Diary," Series 18, B39-F2, 19.
- 364 **"My whole strategy"**: RBF, "Rearrange the Scenery," in *SD*, 14920.

- efforts by other futurists: Andersson, *Future of the World*, 179–81.
- “When you can’t go any further”: RBF, “Rearrange the Scenery,” in SD, 14921.
- water tower in Kuwait: Zahra Ali Baba and Jaber Al-Qallaf, “Dynamic Heritage,” *World Heritage*, December 2016, 58.
- kibbutz in Israel: RBF, *Artifacts of R. Buckminster Fuller*, vol. 4, 219–22. Sadao noted later that their involvement in the Kibbutz Kfar Menachem project would be “very limited” (Sadao to RBF, October 23, 1970, B209-F6).
- religious center at SIU Edwardsville: “Architect Fuller Shows Sketches of Religious Center,” *Alton (IL) Evening Telegraph*, March 22, 1969, 6. Photos and drawings in RBF, *Artifacts of R. Buckminster Fuller*, vol. 4, 192–215.
- Francis Warner: In 1966 Warner had tried unsuccessfully to arrange a meeting between RBF and Beckett, who had been receptive but unfamiliar with the other man’s work: “If you could lighten a little my ignorance concerning him I should be grateful” (Beckett to Warner, June 9, 1966, reprinted in David Tucker, *A Dream and Its Legacies: The Samuel Beckett Theatre Project*, Oxford c. 1967–76 [Gerrards Cross, UK: Colin Smythe, 2013], 47).
- Fuller’s representative: Gillian Meller, email to author, July 30, 2021.
- Norman Foster: Norman Foster, “Richard Buckminster Fuller,” in *Anthology*, 1.
- “It must have been like hearing”: Foster, author interview, October 30, 2020.
- “This is what it would look like”: Tucker, *Dream and Its Legacies*, 13.
- “an underground submarine”: “An Historic and Unique Conference,” B188-F1, 4.
- “while slightly quailing”: Samuel Beckett to Francis Warner, June 28, 1969, reprinted in Tucker, *A Dream and Its Legacies*, 49.
- “He’s a skeptical playwright”: Bernard Weinraub, “Fuller Is Designing Theater at Oxford,” *New York Times*, March 13, 1970, 28.
- “to the ultimate: invisibility”: “An Historic and Unique Conference,” B188-F1, 4.
- “The principle of mobility”: Ibid.
- “To Indira, in whose integrity”: Indira Gandhi to Dorothy Norman, May 26, 1969, quoted in Ramesh, *Indira Gandhi*, 161.
- “deeply touched”: Ibid.
- “the usual drive”: Hatch, 217.
- “a remarkable person”: Indira Gandhi, opening speech before Nehru Lecture by RBF, reprinted in *Planetary Planning* booklet, B450-F3, 1.
- “I have done so simply”: RBF, “Planetary Planning,” *Jawaharlal Nehru Memorial Lectures*, 1967–1972, 74.

- 366 airports in New Delhi: Sadao, 203.
- 366 Edgar J. Applewhite: Biographical information in Applewhite, *Cosmic Fishing*, 1–21.
- 366 computer memory: Trevor Blake, “Buckminster Fuller’s Ultra-Micro Computer,” Synchronofile.com, last modified July 12, 2014, <https://synchronofile.com/2014/07/12/buckminster-fullers-ultra-micro-computer>.
- 366 “become the whole curriculum”: RBF interview in *The World of Buckminster Fuller*.
- 367 John Entenza: Wong, 272–73.
- 367 “He is the only truly great man”: Huston, author interview, April 11, 2019.
- 367 architectural group Archigram: Simon Sadler, *Archigram: Architecture Without Architecture* (Cambridge, MA: MIT Press, 2005), 6, 37–38, 100–103.
- 367 “kidnapped” Fuller: Constance M. Lewallen and Steve Seid, *Ant Farm, 1968–1978* (Berkeley: University of California, 2004), 44.
- 367 Lloyd Kahn: Biographical information derived from Lloyd Kahn, interviewed by author, March 21, 2019, and Kahn, *Domebook 2*, 16.
- 368 “I’ve found this to be true”: J. Baldwin, ed., *The Essential Whole Earth Catalog: Access to Tools and Ideas* (Garden City, NY: Doubleday, 1986), 21.
- 368 he was “very straight”: Lloyd Kahn, author interview.
- 368 “There’s someone you should meet”: Ibid.
- 368 “Persons in their late twenties”: Brand, *Last Whole Earth Catalog*, 112.
- 368 Abandoning the “second-rate”: Jay Baldwin, interviewed in Gowan, *Shared Vision*, 73.
- 368 Pacific High School: Kahn, *Domebook 2*, 32–34, and Alastair Gordon, *Spaced Out: Radical Environments of the Psychedelic Sixties* (New York: Rizzoli, 2008), 204–11.
- 369 Charles Hall: Edward M. Wysocki Jr., *Out of This World Ideas—And the Inventions They Inspired* (Scotts Valley, CA: CreateSpace, 2018), 102.
- 369 “The youth of today”: Elizabeth Barlow, “The New York Magazine Environmental Teach-In,” *New York*, March 30, 1970, 30.
- 370 He planned to hand out leaflets: Tucker, *Dream and Its Legacies*, 25.
- 370 presence on campus was controversial: Martin Pawley describes a fraught encounter with RBF on this trip in *Buckminster Fuller*, 20–31.
- 370 “Welcome to the Buckminster Führer Show”: Ibid., 26.
- 370 “Just as ephemeralization”: RBF, “Education for Comprehensivity,” in RBF, Eric A. Walker, and James R. Killian Jr., *Approaching the Benign Environment*, 106–7.
- 371 “everything with nothing”: Ibid., 108.
- 371 “gratifying their own personal discontent”: Ibid., 107.
- 371 “Because almost everyone”: Ibid., 107–8.

- 371 bamboo domes—or “bambassadors”: *Industrial Design*, February 1961,
65–68.
- 371 solution to Vietnam: Keats, *You Belong to the Universe*, 85.
- 371 Abbie Hoffman: David Farber, *Chicago '68* (University of Chicago Press,
1988), 47.
- 371 “agitating simply because”: RBF, “Education for Comprehensivity,” 109–110.
- 371 “Whites are bleached out”: RBF, “Whites,” in *SD*, 20656.
- 371 “swiftly eradicated”: RBF, “Raison d’Etre,” in *SD*, 14786.
- 371 “I have never met you before”: George Boesel, interviewed in Gowan,
Shared Vision, 167.
- 371 “I am confident”: RBF to Francis Warner, April 20, 1970, quoted in
Tucker, *Dream and Its Legacies*, 58n36.
- 372 “Marines eat rice too”: Scott, “Fluid Geographies,” in *New Views on*
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- 372 until late at night: Gene Youngblood, interviewed by author, January 30,
2020.
- 372 “A concrete scientific alternative”: Gene Youngblood, “Buckminster
Fuller’s World Game,” in *Whole Earth Catalog*, March 1970, 30.
- 372 dome in Edwardsville: Ibid., 32, and Wigley, *Buckminster Fuller Inc.*, 267.
- 372 federal legislation: *Congressional Record* extract in RBF, *World Game*, 39.
- 372 close the campus: “SIU Shut Down After Protests,” *Southern Illinoisan*
(Carbondale), May 13, 1970, 1.
- 372 “brilliantly exploited”: RBF, *CP*, 236.
- 373 “the determination of the students”: Ibid.
- 373 “sitting ducks”: Ibid.
- 373 “He was supposedly coming in”: Syeus Mottel, *Charas: The Improbable*
Dome Builders (New York: Drake, 1973), 150. For another account
of the lecture, see Allan Katzman, “When Will John V. Lindsay Meet
Buckminster Fuller?,” *East Village Other*, April 12, 1968, 4.
- 373 “who basically spent time”: Mottel, *Charas*, 22.
- 373 “completely crazy situation”: Michael Ben-Eli, interviewed by author,
April 1, 2019.
- 374 “They could not see”: Mottel, *Charas*, 109.
- 374 “It’s more about involvement”: Ibid., 73.
- 374 “a New York City Lower East Side gang”: RBF, *Inventions*, 145.
- 374 Agel had met: Itinerary, April 24, 1964.
- 374 “turn of mind”: Jeffrey T. Schnapp and Adam Michaels, *The Electric*
Information Age Book: McLuhan/Agel/Fiore and the Experimental
Paperback (New York: Princeton Architectural Press, 2012), 131.
- 374 “I always say to myself”: RBF, with Agel and Fiore, *I Seem to Be a Verb*, 6.
- 374 “reigning sex symbols”: Laurie Johnston, “Elderly Are Told of the Power in
a May-December Coalition,” *New York Times*, May 1, 1973, 22. Another

older rebel adopted by the counterculture was Henry Miller, whom Robert Snyder videotaped for two days with RBF in California (Itinerary, June 15–16, 1970). This unlikely pairing may have inspired Norman Mailer to lament the comparative lack of mainstream interest in Miller: “On any given night in any lecture hall of America, Buckminster Fuller—another genius—would draw an audience five to, would it be, ten times the size, and Fuller cannot write a sentence which does not curdle the sap of English at its root” (Norman Mailer, *Genius and Lust: A Journey Through the Major Writings of Henry Miller*, comp. Mailer [New York: Grove Press, 1976], 9).

- 374 **“his contribution to mankind’s environment”**: Francis Warner to Calvin Tomkins, June 19, 1970, Calvin Tomkins Papers, Museum of Modern Art, folder I.7. RBF was also nominated for the Nobel Peace Prize that year by the psychiatrist Francis J. Braceland (B204-F5).
- 375 **“the strongest”**: Eugene Garfield, “A Tribute to R. Buckminster Fuller—Inventor, Philosopher,” *Current Contents*, November 2, 1981, 16.
- 375 **Alzheimer’s disease**: Al Gowan, “Delyte W. Morris,” in Gowan, *Shared Vision*, 20.
- 375 **“a broken man”**: Harold Cohen, interviewed in *ibid.*, 16.
- 375 **“strife-free center”**: RBF to Farah Pahlavi, undated (fall 1970), B211-F4.
- 375 **found it “feasible”**: RBF, *CP*, xxxi.
- 375 **Ezra Pound**: RBF and Dil, *Humans in Universe*, 20–25.
- 376 **“the gold from the pine cones”**: *Ibid.*, 24.
- 376 **“tremendously hurt man”**: RBF, *Pound, Synergy, and the Great Design*, 2.
- 376 **“That conversation”**: Guy Davenport to Hugh Kenner, December 30, 1970, reprinted in Guy Davenport and Hugh Kenner, *Questioning Minds: The Letters of Guy Davenport and Hugh Kenner*, vol. 2, ed. Edward M. Burns (Berkeley, CA: Counterpoint, 2018), 1321.
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- 376 **“egocentric soul-searching”**: RBF to Edwin Schlossberg, October 13, 1970, B209-F7.
- 376 **participants were “exploited”**: RBF to John Cage, September 14, 1970, B209-F3.
- 376 ***Whole Earth Catalog***: RBF to Edwin Schlossberg, October 13, 1970, B209-F7.
- 376 **“I thought if I exaggerated”**: Youngblood, author interview, January 30, 2020.
- 376 **“greatly weakening”**: RBF to Gene Youngblood, October 13, 1970, B209-F7.
- 376 **“Humanity is acquiring”**: RBF, “The Earthians’ Critical Moment,” *New York Times*, December 11, 1970, 47.

- 376 “I’m the only man”: RBF, “*Playboy* Interview,” *Playboy*, February 1972, 198.
- 377 “Something hit me very hard once”: Ibid., 199–200.
- 377 “demountable” auditorium: Norman Foster to the Master of St. Peter’s College, October 26, 1970, B209-F6.
- 378 5 percent of the royalties: Dale Klaus to Lloyd Kahn, June 8, 1970, quoted in Scott, “Fluid Geographies,” in *New Views on R. Buckminster Fuller*, ed. Chu and Trujillo, 172.
- 378 “Your engineer”: Lloyd Kahn, author interview, March 21, 2019.
- 378 Fuller was excessively “pissed”: Ibid.
- 378 “everyone concerned”: Joseph D. Clinton, email to author, January 31, 2021.
- 378 “What’s good about 90° walls”: Kahn, *Shelter*, 117.
- 379 “less with less”: Ibid., 117.
- 379 “Our work, though perhaps smart”: Ibid., 112.
- 379 “demonstrative urban conservation park”: Wong, 433.
- 379 “Bucky, I think you’ve been in Africa”: RBF, *EIK*, session 11.
- 379 “There is nothing in Calcutta”: RBF, *Education Automation*, 50.
- 379 “raceless and classless”: Wong, 437.
- 379 Old Man River’s City: Sources include *ibid.*, 433–40, and RBF, *CP*, 315–23.
- 380 “might be part of its social enemy’s conspiracy”: RBF, *CP*, 322.
- 380 “I said that what I would design”: Ibid., 322.
- 380 “our design solution”: Ibid., 321.
- 380 searched by the CIA: *Your Private Sky*, ed. Krausse and Lichtenstein, 37.
- 380 “using my phone”: RBF, “Carbondale Office,” in *SD*, 1742.
- 380 basketball stadium: O’Dell and Heckman, *Bucky’s Dome*, 59.
- 380 maintaining his archives: Ibid., 60.
- 380 event of a state audit: Bill Perk, author interview, March 15, 2019.
- 380 “these two fighters”: Tony Pugh, interviewed in Gowan, *Shared Vision*, 77. Pugh believed that this referred to the “Rumble in the Jungle” between Ali and George Foreman on October 30, 1974, but the chronology points to the Ali-Frazier fight on March 8, 1971.
- 380 “Every time humanity”: RBF and Dil, *Humans in Universe*, 21.
- 380 “friend of the universe”: Ibid., 20.
- 381 “You could not meet Maharishi”: RBF press conference with Maharishi Mahesh Yogi, <https://www.organism.earth/library/document/amherst-press-conference> (accessed January 2021). RBF contributed an introduction to Harold H. Bloomfield, Michael Peter Cain, Dennis T. Jaffe, and Robert B. Kory, *TM: Discovering Inner Energy and Overcoming Stress* (London: Unwin Paperbacks, 1976), xiii, in which he related Transcendental Meditation to his own techniques. Two domes were later built at Maharishi International University in Fairfield, Iowa, “as a place to practice levitation” (Sam Farling to RBF, February 10, 1980, B411-F4).

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- 381 "All those years": Hatch, 79.
- 381 Hexa-Pent Dome: RBF, "My New Hexa-Pent Dome," *Popular Science*, May 1972, 128–31, and RBF, *Inventions*, 264–68.
- 381 "the time or skills": Norman Foster, "Buckminster Fuller—File for Future." Manuscript provided to the author by Norman Foster.
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- 381 "complete strangers to me": Written statement by RBF, quoted in *ibid.*
- 382 "I live on planet Earth": "Fuller Plans Office on SIU-Edwardsville Campus," *Southern Illinoisan* (Carbondale), September 24, 1971, 1.
- 382 Herman Wolf: According to Wolf, he and RBF reconciled after a chance encounter at Yale in 1957 (Herman Wolf, interviewed by Terry Hoover and Bill Pretzer, October 25, 2001, Benson Ford Research Center).
- 382 "I could conk out": Boyce Rensberger, "New Institute to Promote Buckminster Fuller's Pioneer Ideas: Reform of Environment Long Goal of Maverick," *New York Times*, June 29, 1972, 41.
- 382 "I would have assumed": Hatch, 223.
- 382 "a joint manifesto": *Ibid.*
- 382 "are in fact the feedback": RBF, "The Lord's Prayer," in *Intuition*, 184.
- 382 "a financial intervention": Medard Gabel, interviewed by author, January 22, 2020.
- 382 tired and irritable: Hatch, 272.
- 382 put his grandson through college: Chu, "Archive of R. Buckminster Fuller," 21.
- 383 moving to Philadelphia: Gabel, author interview.
- 383 annual funds of \$50,000: Martin Meyerson to RBF, October 4, 1978, B374-F9.
- 383 "a coup roughly of the same magnitude": William C. Lyon, "Buckminster Fuller: Our New Ben Franklin," *Philadelphia Inquirer*, November 1, 1972, 1.
- 383 keep her husband at home: Creed C. Black, "Reflections: Congress Retards Nixon Domestic Policy," *Philadelphia Inquirer*, November 26, 1972, 5-H.
- 383 "the interaccommodative": Shirley Sharkey, email to author, March 18, 2019. For the Scheherazade numbers, see RBF with Applewhite, *Synergetics*, 771–83.
- 384 Cam Smith: Biographical information derived from "Public Invited to Hear Dr. Buckminster Fuller Feb. 1, Green Auditorium," *Vincennes (IN) Sun-Commercial*, January 29, 1973, 3.
- 384 "a tremendous tool": Cam Smith to RBF, September 15, 1968, B176-F5.

- 384 “Things could and should be”: Ibid.
- 384 “in line with each other”: Charlene Sprang to RBF, October 16, 1971, B231-F3.
- 384 “Dr. Fuller is familiar”: Shirley Swansen to Charlene Sprang, October 28, 1971, B231-F3.
- 384 “dedicated to reducing crime”: Copyright page of RBF, *Buckminster Fuller to Children of Earth*, comp. and photographed by Cam Smith (Garden City, NY: Doubleday, 1972).
- 384 a vehicle for Hubbard’s theories: Lawrence Wright, *Going Clear: Scientology, Hollywood, and the Prison of Belief* (New York: Vintage Books, 2013), 241–43.
- 384 “the leader of something”: Alvin Toffler, *The Futurists* (New York: Random House, 1972), 6.
- 384 Libre and Red Rockers: Amy Azzarito, “Libre, Colorado, and the Hand-Built Home,” in *West of Center: Art and the Counterculture Experiment in America, 1965–1977*, ed. Elissa Auther and Adam Lerner (Minneapolis: University of Minnesota Press, 2012), 95–108.
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- 385 “It’s beautiful, isn’t it?”: Mottel, *Charas*, 61.
- 385 “a triumph”: Ibid., 63.
- 385 “Hey, is this man important?”: Ibid.

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- 386 “Fictional history”: RBF with Applewhite, *Synergetics*, 661.
- 386 “I seem to be a verb”: Stephen Schwartz, “Prologue / Tower of Babble,” *Godspell*, <https://www.allmusicals.com/lyrics/godspell/prologuetowerofbabble.htm> (accessed January 2021).
- 387 “a visionary trance”: Sean Kelly, Joe Orlando, and John Costanza, “Utopia Four Comix,” *National Lampoon*, June 1971, 32. “Buckminster Fuller’s Repair Manual for the Entire Universe” by Henry Beard, Harry Fischman, and Jeffrey Prescott ran in *National Lampoon*, January 1972, 43–46.
- 387 episode at the Expo Dome: The same site later served as a location for Robert Altman’s 1979 film *Quintet* (Legault, “Death and Life of Buckminster Fuller’s US Pavilion at Expo 67,” in *Montreal’s Geodesic Dreams*, ed. McAtee, 105).
- 387 *Earth II*: The pilot ran as a movie on CBS and in theaters overseas. RBF’s role included “reading and checking the scientific accuracy and plausibility of stories and scripts,” proposing his own ideas, and granting permission

- for the use of the Dymaxion Map (F. C. Houghton to Frank Rosenfelt, MGM memo, September 15, 1970, B211-F1).
- 387 **Brave New World:** Milton Sperling to RBF, March 15, 1967, B155-F6.
- 387 **Amundsen-Scott South Pole Station:** Frank A. Blazich Jr., “Rendezvous with Penguins: Seabee Construction of the South Pole Dome,” *Seabee Magazine*, <https://seabeemagazine.navylive.dodlive.mil/2014/08/27/rendezvous-with-penguins-construction-of-the-south-pole-dome> (accessed May 2021).
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- 388 **his staff had been reduced:** Hiring history provided by Tim Wessels, interviewed by author, March 21, 2019.
- 388 **despite back pain:** Kenner, *Bucky*, 47. A decade earlier, RBF had learned that his left leg was an inch shorter than his right, resulting in leg pain that required him to wear special shoes (Rumwell, *Time* profile notes, Take 6, December 26, 1963, B126-F4).
- 388 **Fuller’s standard quote:** Shirley (Swansen) Sharkey, interviewed by author, March 18, 2019.
- 388 **“I have absolutely no budget”:** Applewhite, *Cosmic Fishing*, 31.
- 389 **a floatable breakwater:** RBF, *Inventions*, 269–73. An improved version was patented in 1979.
- 389 **Fuller advised Windworks:** AP, “Answer to Energy Problems May Be Blowing in Wind,” *Oshkosh (WI) Northwestern*, October 3, 1974, 9, and RBF, “Wind Power Sequence,” in *SD*, 20735–47.
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- 389 **“A spaceship is built by man”:** Rasa Gustaitis, *Wholly Round* (New York: Holt, Rinehart and Winston, 1973), 158–59.
- 389 **“one has an obligation”:** Kenner to Guy Davenport, July 2, 1963, reprinted in Davenport and Kenner, *Questioning Minds*, vol. 1, 358.
- 390 **“[Fuller] reiterates”:** Kenner, *Bucky*, 181.
- 390 **“some sharp kids from the streets”:** Ibid.
- 390 **“I wouldn’t have”:** Ibid., 182.
- 390 **lost research and speaking time:** Hatch, 248–49.
- 390 **“If anyone were to ask you”:** RBF, “Airport,” in *SD*, 290.
- 390 **“I hope no irrevocable commitments”:** Indira Gandhi to Karan Singh, March 1, 1973, quoted in Ramesh, *Indira Gandhi*, 163.
- 391 **“visibly had little to do with Bucky”:** Sadao, 203.
- 391 **U Thant:** Itinerary, March 5, 1969, and October 30, 1970, and RBF, *CP*, 183–84.

- 391 **compiled from his earlier work:** Michael Ben-Eli, quoted in Jaime Snyder, “*And It Came to Pass—Not to Stay*: Background,” appendix to RBF, *And It Came to Pass—Not to Stay* (Zurich: Lars Müller, 2008), 182–83.
- 391 **Marks felt “terribly hurt”:** Robert W. Marks to RBF, July 14, 1973, B261-F4.
- 391 **second book by Kenner:** Hugh Kenner’s *Geodesic Math and How to Use It* (Berkeley: University of California Press) was published in 1976. RBF was originally slated to write an introduction, but the result was rejected. “Bucky [Fuller] has thrown a mini-tantrum. The introduction that he promised turned out to be 57 pages long, full of cadenzas and insinuations that the book (which he hasn’t read) might better have been produced by for instance himself, if his patent attorney (he now says) hadn’t counseled against publishing methods of design” (Kenner to Guy Davenport, June 10, 1975, reprinted in Davenport and Kenner, *Questioning Minds*, vol. 2, 1580).
- 391 **“He had proposed”:** Applewhite, *Cosmic Fishing*, 5.
- 391 **“thinking out loud”:** Ibid., 1.
- 391 **“Address! That isn’t the right question”:** RBF, “Planet Earth,” in *SD*, 13478.
- 392 **“an unexpected shipment”:** Applewhite, *Cosmic Fishing*, 91.
- 392 **“I am feeling myself”:** Ibid., 95.
- 392 **“confronting the author”:** Edgar J. Applewhite, “A Note on Collaboration,” in RBF with Applewhite, *Synergetics*, vii.
- 392 **“For Fuller, nature”:** Applewhite, *Cosmic Fishing*, 78.
- 392 **Kahn’s associate Anne Tyng:** Ibid., 108.
- 392 **“the bridge builder”:** RBF to Arthur L. Loeb, January 6, 1967, quoted in *ibid.*, 111.
- 392 **“digressions into metaphysics”:** Loeb to J. Pack, September 3, 1971, quoted in Wong, 467.
- 393 **“My own lay conclusion”:** Siobhan Roberts, *King of Infinite Space: Donald Coxeter, the Man Who Saved Geometry* (Toronto: Anansi, 2006), 179.
- 393 **Gerald Dickler:** Applewhite, *Cosmic Fishing*, 123–24.
- 393 **went to Hugh Kenner for comments:** Kenner to Guy Davenport, May 7, 1972, reprinted in Davenport and Kenner, *Questioning Minds*, vol. 2, 1404.
- 393 **impact on Fuller was “galvanic”:** Applewhite, *Cosmic Fishing*, 127.
- 393 **“His imagination is triggered”:** Ibid., 129.
- 393 **“Now we know that it is right”:** RBF, “Fuller, R. B.: On Galley Proofs,” in *SD*, 6342.
- 394 **“a book about models”:** Applewhite, *Cosmic Fishing*, 62.
- 394 **H. S. M. Coxeter, “the geometer”:** Dedication page in RBF with Applewhite, *Synergetics*.

- 394 “after much deliberation”: Applewhite, “Account by R. Buckminster Fuller of His Relations with Scientists,” Series 8, B12-F23, 9.
- 394 “foolhardy freedom to explore”: Ibid.
- 394 “a remarkable discovery”: Roberts, *King of Infinite Space*, 179.
- 394 whom he praised for his intuition: Charles Panati, “Almighty Tetrahedron,” *Newsweek*, April 21, 1975.
- 394 “a brilliant architect and engineer”: Roberts, *King of Infinite Space*, 178.
- 395 “a lot of nonsense”: Ibid., 181.
- 395 “dare to be naïve”: RBF with Applewhite, *Synergetics*, xix. The statement recalls “Dare to Be True,” the motto of Milton Academy (Sadao, 26).
- 395 “Synergy means behavior”: RBF with Applewhite, *Synergetics*, 3.
- 395 “You may say that we had no right”: Ibid., 4.
- 395 “When we draw a triangle”: Ibid., 443.
- 395 “Only the triangle produces structure”: Ibid., 318.
- 396 “the minimum thinkable set”: Ibid., 239.
- 396 “the number of telephone lines”: Ibid., 60.
- 396 a triangular number: RBF, “Whole Number or Rational Basic Relationship of Dymaxion Comprehensive System to Light Quanta Particle Growths,” May 7, 1948, reproduced in *ibid.*, 816–17.
- 397 “Tetrahedron Discovers Itself and Universe”: RBF with Applewhite, *Synergetics*, 209–15.
- 397 “a business of stark homage”: Applewhite, *Cosmic Fishing*, 143.
- 397 mass of other material: Other topics discussed in *Synergetics* include the concept of “triangling” or “tetrahedroning” instead of squaring and cubing for finding the second and third powers of numbers; the A and B quanta modules, which RBF derived by dividing the tetrahedron and octahedron into the minimum units of his geometry; and the Scheherazade numbers, which he obtained by multiplying primes into enormous integers that would allow computers to perform trigonometric calculations in whole number increments.
- 397 prose recalled Gertrude Stein: Arthur L. Loeb, preface to RBF with Applewhite, *Synergetics*, xvi.
- 397 “James Joyce to a mild extent”: RBF, “Conceptuality of Fundamental Structures,” in *Structure in Art and in Science*, ed. Kepes, 81.
- 397 “Make it new”: Michael North, “The Making of ‘Make It New,’” *Guernica*, August 15, 2013, <https://www.guernicamag.com/the-making-of-making-it-new> (accessed January 2021).
- 397 “There are to this day certain passages”: Applewhite, *Cosmic Fishing*, 48.
- 397 “I find certain passages sublime”: Ibid., 49.
- 397 “Maybe the reader”: Ibid., 73.
- 397 “If we had only two days”: Ibid., 93.
- 398 “I always assume”: Ibid.

- 398 “intimations of mortality”: Ibid.
- 398 “Boy, this must be a nice job”: Sharkey, author interview, March 18, 2019.
- 398 Fuller became distressed: Tim Wessels, author interview, March 21, 2019.
- 398 an even larger pattern: RBF with Applewhite, *Synergetics* 2, 122–23.
- 398 “Lady Anne and Her Little Old Man”: Jaime Snyder, email to author, April 27, 2021.
- 398 world president of the high-IQ society Mensa: RBF later offered to resign in the wake of criticism from certain American members of Mensa, but he elected to retain the honorary position, in part because of a dispute with its international chairman, Victor Serebriakoff (B377-F5). He also began to serve around this time as a tutor in design science for International College, which paired students with mentors for private study (Bruce Winters, “The World for a Classroom,” *Baltimore Sun*, April 7, 1974).
- 399 “give the reviewers”: Applewhite, *Cosmic Fishing*, 141.
- 399 “You’re very . . . *universe*”: Annie Dillard, “Buckminster Fuller,” in *Brushes with Greatness: An Anthology of Chance Encounters with Celebrities*, ed. Russell Banks, Michael Ondaatje, and David Young (Toronto: Big Bang, 1989), 29.
- 399 “After he sat on me”: Annie Dillard, email to author, February 25, 2021.
- 399 “scores of incomprehensible letters”: Dillard, “Buckminster Fuller,” 29.
- 399 “carry real weight in the universe”: Annie Dillard, *Living by Fiction* (New York: Harper Perennial, 1988), 174.
- 400 “A dome really might not leak”: Stewart Brand, *Whole Earth Epilog: Access to Tools* (San Francisco: Point, 1974), 467.
- 400 “As a major propagandist”: Stewart Brand, *How Buildings Learn: What Happens After They’re Built* (New York: Viking, 1994), 59–60.
- 400 “How do you convince people”: Stewart Brand, afterword to Gabel, *Energy, Earth, and Everyone*, 155.
- 400 Brown invoked Spaceship Earth: Joseph Lelyveld, “Jerry Brown’s Space Program,” In America, *New York Times Magazine*, July 17, 1977, 55.
- 400 used Brand as a matchmaker: Ibid.
- 400 “*Synergetics* excludes”: Applewhite, *Cosmic Fishing*, 66.
- 401 “All humanity has always been born naked”: RBF, *EIK*, session 1.
- 401 “tremendously tender”: Ibid., session 9.
- 401 “People would say”: Ibid.
- 401 “When you can’t find the logical way”: Ibid., session 5.
- 401 “When the kids can really get information”: Ibid., session 12.
- 401 “I don’t see any pure males”: Ibid., session 2.
- 401 “When the bound galleys”: Denneny, author interview, March 22, 2019.
- 402 “the Leonardo da Vinci”: Ibid.
- 402 “You sent me a world”: Annie Dillard to RBF, May 12, 1975, B375-F4.
- 402 thirty thousand copies: Denneny, author interview.

- 402 “many flaws”: RBF, *EIK*, session 11.
- 402 Tatyana Grosman: The following account is based largely on Wallach, intro. to RBF, *Tetrascroll*, ix–xxvii.
- 402 “The stone invites me”: Polly Lada-Mocarski, “Book of the Century: Fuller’s *Tetrascroll*,” *Craft Horizons*, October 1977, 18.
- 402 “the empirical, the scientific way”: Applewhite in RBF, *SD*, xxvii.
- 403 “The Red Sea is still open”: Wallach, intro. to *Tetrascroll*, xxi.
- 403 Fuller proudly called it *Tetrascroll*: The original book closed with a photo of RBF’s granddaughter, Alexandra, captioned as the “only known picture of Goldy” (E. Maurice Bloch, *Words and Images: Universal Limited Art Editions, Frederick S. Wight Art Gallery, March 14–May 7, 1978* [Los Angeles: The Gallery, 1978], 6). An epilogue by Schlossberg, “Epilever,” played on RBF’s notion that the principle of the lever had been discovered by a man standing on a log (*Tetrascroll*, 128–29).
- 403 archaeological site in Thailand: RBF, *Artifacts of R. Buckminster Fuller*, vol. 4, 353–59.
- 403 “all kinds of undemocratic”: Indira Gandhi to RBF, July 10, 1975, Series 7, B19-F5.
- 403 “treachery of information”: RBF, *EIK*, session 12.
- 403 printing “propaganda”: Ibid.
- 403 World Society of Ekistics: Itinerary, November 11, 1975.
- 404 “human unsettlement”: RBF, “Accommodating Human Unsettlement,” September 20, 1976, presented to the House Committee on Banking, Currency and Housing (*The Rebirth of the American City*, US Government Printing Office, 1976).
- 404 Richard Burton: Tucker, *Dream and Its Legacies*, 8.
- 404 Burton paid another £17,500: Richard Burton, *The Richard Burton Diaries*, ed. Chris Williams (New Haven, CT: Yale University Press, 2012), 613.
- 404 “very diminutive”: RBF to Francis Warner, August 13, 1976, B325-F4.
- 404 “What I had surmised”: Sadao, 213. For Noguchi’s use during this period of a “post-tensioning” sculptural technique inspired by RBF, see Herrera, *Listening to Stone*, 328.
- 404 renewed for two more years: Martin Meyerson to RBF, October 4, 1978, B374-F9.
- 404 International Conference on the Unity of the Sciences: James Robison, “Charges Cloud Moon’s Conference,” *Chicago Tribune*, September 6, 1975, sec. 2, 11.
- 405 “vectors and valences”: Tom Patton, *The Synanon Philosophy* booklet, B211-F2, 28.
- 405 “gluing their fingers”: Ibid., 20.
- 405 “Chuck has installed”: David Cole Gordon to RBF, September 18, 1968, B176-F6.

- 405 **“allowed for individual expression”**: Rod Janzen, *The Rise and Fall of Synanon: A California Utopia* (Baltimore: Johns Hopkins University Press, 2001), 59.
- 405 **“The process of World Game”**: Mark Victor Hansen to Steve Meyers, June 17, 1970, B280-F6.
- 405 **“an extraordinary philosophic treatise”**: RBF to Steve Meyers, October 26, 1973, B280-F6.
- 405 **“I am an admirer of Chuck Dederich”**: Ibid., July 29, 1971, B280-F6.
- 405 **repressive practices**: See correspondence between RBF and Meyers in B280-F6.
- 406 **they agreed to work together**: Roger Stoller, interviewed by author, May 13, 2019.
- 406 **“Grandpa,” Jaime said**: Jaime Snyder, interviewed by author, April 23, 2019.
- 406 **often referring to trainees as “assholes”**: Luke Rhinehart, *The Book of est* (Hypnotic I Media, 2010, EPUB ed.), 39.
- 407 **“Jaime, I don’t really”**: Jaime Snyder, author interview, April 23, 2019.
- 407 **“a great conversation”**: Barbara Stevenson, email to author, February 9, 2022.
- 407 **conventional notions of gender**: RBF’s views on women’s rights were largely mediated by his sense of domestic labor, which he framed as a matter of design (“Dymaxion House,” in *Discourse*, 92). He supported the Equal Rights Amendment (RBF, *Cosmography*, 263), believed that abortion should be legalized (RBF, *Synergetics* 2, 366, and RBF, “Abortion,” in *SD*, 16), and proposed that the futurist Barbara Marx Hubbard run for president (Hubbard, “Path of Social Evolution,” in *Anthology*, 140), but in “Why Women Will Run the World” (*McCall’s*, March 1968), he envisioned a new set of gender roles, rather than their removal: “Women will convert man’s scientific findings to industrial production.”
- 407 **“My brother”**: Alexandra Snyder May, author interview, May 17, 2019.
- 407 **“Grandpa, how do you deal?”**: Jaime Snyder, author interview, April 23, 2019.
- 408 **The North Face**: Account based on Bruce Hamilton, “The North Face and R. Buckminster Fuller Special Connection,” <https://www.outinunder.com/content/north-face-and-r-buckminster-fuller-special-connection-part-1> (accessed January 2021).
- 408 **“I am writing to you now”**: Don Butts to RBF, April 10, 1970, reproduced at “Bruce Hamilton’s The North Face and R. Buckminster Fuller Archive,” <https://www.outinunder.com/documents/bruce-hamiltons-north-face-and-r-buckminster-fuller-archive> (accessed January 2021).
- 408 **“the single occupant”**: RBF to Don Butts, June 4, 1970, reproduced at *ibid.*

- 408 **"It is no aesthetic accident":** Bruce Hamilton, "The North Face and R. Buckminster Fuller Special Connection—Part 2," <https://www.outinunder.com/content/north-face-and-r-buckminster-fuller-special-connection-part-2> (accessed May 2021).
- 409 **Philadelphia folk club:** At the Cherry Tree Folk Club in Philadelphia on January 18, 1976, RBF sang and danced onstage with a band led by Pete Stampfel of the psychedelic folk group the Holy Modal Rounders. The live album *Dymaxion Ditties* was produced in a limited edition of fifty copies (Series 17, Mixed Materials 71, Reel 292). An item on the concert ran in *The Village Voice* ("The Geodesic Drone," March 1, 1976).
- 409 **Lim Chong Keat:** Lim later funded the publication of *Synergetics Folio*, a limited edition of ten posters that were printed in Singapore and completed in 1979. Reduced versions were reproduced in *Synergetics 2*.
- 409 **plans for Komtar:** Soon-Tzu Speechley, "Komtar: Malaysia's Monument to Failed Modernism," *Failed Architecture*, June 6, 2016, <https://failedarchitecture.com/komtar-malaysias-monument-to-failed-modernism> (accessed May 2021).
- 409 **"his best friend":** Shirley Sharkey to Lim Chong Keat, telegram, July 2, 1983, B489-F6.
- 409 **"in awesome review":** "Campuan Society Meeting, January 10–16, 1977," B347-F1, 1.
- 409 **dome out of bamboo:** Daniel Carleton Gajdusek, *Stumbling Along the Tortuous Road to Unanticipated Nobility: Melanesian, Indonesian, and Malaysian Expedition* (Bethesda, MD: Study of Child Growth and Development and Disease Patterns in Primitive Cultures, National Institute of Neurological and Communicative Disorders and Stroke, 1996), 313.
- 409 **"Carl, I have a good friend":** Carl Solway, letter to author, April 1, 2019.
- 409 **Ohio Building Authority:** Ibid.
- 410 **"I've seen time and again":** RBF, *EIK*, session 12.
- 410 **rechristened the Biosphere:** "Son of Expo," *Courier-Journal & Times* (Louisville, KY), April 14, 1968.
- 410 **caught fire:** "US-Built Geodesic Dome in Montreal Guttled in Fire," *Palm Beach Post*, May 21, 1976.
- 410 **"It almost seemed":** RBF, "Accommodating Human Unsettlement," September 20, 1976, presented to the House Committee on Banking, Currency and Housing (*The Rebirth of the American City*, US Government Printing Office, 1976, 1019).
- 410 **"What would have happened?":** Guy Hulot, letter in Kahn and Easton, *Shelter II*, 203.
- 410 **Erhard, Ruth Asawa, and the neuroscientist John Lilly:** Jaime Snyder, author interview, April 23, 2019.

- 410 **"I don't see this":** John Poppy, "Bringing the Universe Home," *est Graduate Review*, December 1976, 7.
- 411 **Now House:** RBF, "Accommodating Human Unsettlement," 1026.
- 411 **North Face donated two tents:** Bruce Hamilton, "The North Face and R. Buckminster Fuller Special Connection—Part 2," April 19, 2018, <https://www.outinunder.com/content/north-face-and-r-buckminster-fuller-special-connection-part-2> (accessed May 2021). RBF later discussed consulting for The North Face on a tensegrity tent, which was never produced.
- 411 **Pushcart Prize:** Ben Reuven, "Leviathans of the Little Magazines," *Los Angeles Times Book Review*, July 25, 1976, 13.
- 411 **"The young people":** RBF, "Politics & Property," in *SD*, 13688.
- 411 **Peter Senge:** Poppy, "Bringing the Universe Home," 6.
- 411 **"In other words":** John Mankiewicz, "Shoot-Out at the I'm OK/You're OK Corral," in *Very Seventies: A Cultural History of the 1970s, from the Pages of Crawdaddy*, ed. Peter Knobler and Greg Mitchell (New York: Fireside, 1995), 299.
- 411 **"Computers can be run":** Ibid., 300.
- 412 **suspicious of the relationship:** Tim Wessels, author interview, March 21, 2019.
- 412 **"Bucky hated Werner Erhard":** Brown, author interview, April 16, 2019.
- 412 **"a good human being":** RBF, "Fuller, R. B.: On Werner Erhard & est," in *SD*, 6327.
- 412 **"New York was one of many":** Mankiewicz, "Shoot-Out at the I'm OK/You're OK Corral," 301.
- 412 **"in a surprising and brilliant way":** Sadao, 213.
- 412 **Guy Nordenson:** Ibid.
- 412 **"He did one of his freakouts":** Roger Stoller, author interview, May 13, 2019.
- 412 **"I would have gone on loving you":** RBF to Noguchi, June 4, 1975, B297-F6.
- 413 **"Despite our best efforts":** Sadao, 213.
- 413 **"planetary revolution":** RBF, "And It Came to Pass (Not to Stay)," in *And It Came to Pass—Not to Stay* (New York: Macmillan, 1976), 113.
- 413 **"edifice complex":** Robert Whymant, "A Conjugal Dictatorship Rules in the Philippines," *Gazette* (Montreal), May 10, 1976, 9. Reprint from the *London Sunday Times*.
- 413 **"Within one of the great dictatorships":** RBF, *CP*, 138.
- 413 **"not pursued":** Ibid.
- 413 **"an only barely audible":** Diplomatic cable from US embassy in Manila, October 28, 1976, archived at https://wikileaks.org/plusd/cables/1976MANILA16743_b.html (accessed January 2021).
- 413 **"geodesic communities":** Samuel Lanahan, "Dome Communities for Southeast Asia" report, B343-F4.

- 414 “definite fear”: Tom Vinetz, interviewed by author, August 5, 2020.
- 414 “This is not to say”: Ibid.
- 414 “memorably delightful”: RBF to Imelda Marcos, April 3, 1977, B343-F4.
- 414 “dome farm”: Lanahan, “Dome Communities for Southeast Asia” report, B343-F4.
- 414 fee of \$320,000: Draft agreement with the government of the Philippines, 1977, B343-F4.
- 414 her advisors were concerned: “Comments on the Proposed Agreement,” B343-F4.
- 414 “only when asked”: RBF, “Promote: I Don’t Promote,” in *SD*, 14329.
- 414 “fuselage cartridge”: RBF, “Curricula and the Design Initiative,” in *UOO*, 295–97.
- 415 reminded Neva Kaiser of a coffin: Goodwin (Kaiser), author interview, March 22, 2019.
- 415 “a spoke in the wheels”: Ibid.
- 415 precursor organizations: Ibid. One predecessor was an early incarnation of the Buckminster Fuller Institute, which was run by Don Moore for twelve years (Henry E. Strub to RBF, December 17, 1973, B267-F7).
- 415 “Making sense”: RBF, “Technology: Enchantment vs. Disenchantment,” in *SD*, 17852.
- 415 “the world’s politicians”: RBF to Neva Kaiser, June 10, 1974, quoted in “Cosmic vs. Terrestrial Accounting,” in *SD*, 3143.
- 415 “I thought that perhaps”: Goodwin (Kaiser), author interview.
- 415 “One never knows”: Glenn A. Olds, “R. Buckminster Fuller: Cosmic Surfer,” in *Anthology*, 64.
- 415 “Everybody sat down”: Jaime Snyder, email to author, April 27, 2021.
- 415 “The necessary restrictions”: Neva Kaiser to Glenn A. Olds, April 24, 1977, provided to the author by Neva Goodwin (Kaiser).
- 416 In the end, Norman Cousins: Olds, “Cosmic Surfer,” 64.
- 416 intended to live to be 120: John Cage and Morton Feldman, *Radio Happenings I–V*, trans. Gisela Gronemeyer (Cologne, Ger.: MusikTexte, 1993), 149.
- 416 He talked about dying: Alexandra Snyder May, author interview, June 7, 2019.

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- 417 “We can put”: RBF with Applewhite, *Synergetics*, 441.
- 417 a “context” for ending hunger: Werner Erhard, *The Hunger Project* (San Francisco: Hunger Project, 1977), 1.
- 417 “after considerable research”: Ibid., 39.
- 417 “anything dreamable”: RBF, “The Music of the New Life,” in *UOO*, 52.

- 417 “What can the little individual do?": Erhard, *Hunger Project*, 26.
- 418 “a morally religious idea”: Schlossberg, author interview, March 27, 2019.
- 418 “If you could see it”: Ibid.
- 418 “You and I want to contribute”: Erhard, *Hunger Project*, 3.
- 418 it raised more than \$800,000: Suzanne Gordon, “Let Them Eat est,” *Mother Jones*, December 1978, 42.
- 418 “a thinly veiled recruitment arm”: Ibid.
- 418 Douglas Engelbart: Markoff, *What the Dormouse Said*, 210–11.
- 418 Carl Sagan and . . . Arnold Schwarzenegger: Classified ad in a 1977 issue of *Saturday Review*, <https://books.google.com/books?id=SPseAQAAMAAJ> (accessed December 2020). RBF, Schwarzenegger, and Werner Erhard were listed as speakers at an event organized by Jerry Rubin (John Leonard, “Private Lives,” *New York Times*, November 8, 1978, sec. C, 12).
- 418 lectures on campuses: Susan Heller Anderson, “Stars of Today’s Lecture Circuit,” *New York Times*, April 8, 1982, sec. C, 1. The firm was Brian Winthrop International.
- 419 North Perry, Ohio: RBF, *Artifacts of R. Buckminster Fuller*, vol. 4, 326–35.
- 419 “revolutionary courage”: RBF to Jane Fonda, draft letter (unsent), 1978, B360-F9.
- 419 Prince Shahram Pahlavi-Nia: James Parks Morton, “Bucky Fuller—Nine Epiphanies,” in *Anthology*, 77–78, and correspondence in B360-F3.
- 419 Arthur C. Clarke: RBF also corresponded and made appearances with the science-fiction author Isaac Asimov (for example, “Five Noted Thinkers Explore the Future,” *National Geographic*, July 1976, 68–74). For Robert A. Heinlein’s interest in the first version of the Dymaxion House, which predated his career as a writer, see Heinlein to RBF, December 8, 1934, B33-V52. In the unpublished 1963 essay “If You Don’t See It, Just Ask,” Heinlein described his attempt to order a Wichita House (Heinlein Archives, UC Santa Cruz, Box 72, Opus 148). In July 1979 both men also testified separately before the House of Representatives on applications of space technology for the elderly and handicapped. See Itinerary and William H. Patterson, *Robert A. Heinlein: In Dialogue with His Century*, vol. 2, 1948–1988: *The Man Who Learned Better* (New York: Tor Books, 2016), 412–14.
- 419 “one of the important exceptions”: RBF to A. C. Spector, October 11, 1968, B175-F8.
- 419 “one of the world’s”: RBF, “Fuller, R. B.: Described as Engineer-Saint,” in *SD*, 6326.
- 419 “I think he’s the world’s first engineer-saint”: Ibid.
- 419 “traffic vertically ascending”: Arthur C. Clarke, “The Fountains of Paradise,” in *Anthology*, 134.
- 419 “many alternate plantings”: Morton, “Fuller—Nine Epiphanies,” 79.
- 419 “wildly impractical”: Ibid., 81.

- 420 **"I'm glad you liked":** Cam Smith to RBF, June 20, 1978, B370-F1.
- 420 **"people in my environment":** Mary to RBF, May 22, 1978, B370-F7. At Mary's request, her last name has been omitted from the text.
- 420 **accused of stealing ideas from Hubbard:** Since 1976 Hubbard had been convinced that est had copied his theories and techniques, which led to an ongoing campaign by Scientology to discredit Erhard. See Robert W. Welkos, "Founder of est Targeted in Campaign by Scientologists," *Los Angeles Times*, December 29, 1991, 1, and Peter Haldeman, "The Return of Werner Erhard, Father of Self-Help," *New York Times*, November 28, 2015, ST1.
- 420 **"I have learned, however":** Mary to RBF, June 26, 1978, B370-F7.
- 420 **"intellectual curiosity":** Mary, email to author, April 19, 2021.
- 420 **swallowing difficulties:** Allegra Fuller Snyder, "Notes on Anne and Bucky Fuller's Deaths," Buckminster Fuller Institute, <https://www.bfi.org/about-fuller/biography/notes-anne-and-bucky-fullers-deaths> (accessed January 2021).
- 421 **"various seaweed things":** Roger Stoller, author interview, May 13, 2019.
- 421 **diagnosed with pericarditis:** Shirley Sharkey to Jeremy Bradford, August 28, 1978, B371-F5.
- 421 **inscribed a copy of *Synergetics*:** Mary, email to author, April 19, 2021.
- 421 **"an engineer and architect":** L. Ron Hubbard, "Positioning, Philosophic Theory," January 30/1979, reprinted at <http://suppressiveperson.org/1979/01/30/hcopl-positioning-philosophic-theory> (accessed January 2021).
- 421 **"Its handling feels better":** 1978 Honda Civic advertisement, The Henry Ford Museum, <https://www.thehenryford.org/collections-and-research/digital-collections/artifact/367351> (accessed December 2020). RBF also appeared in commercials for *Funk & Wagnalls New Encyclopedia* (Philip H. Dougherty, "B. & W. Offering a Rolls-Royce," *New York Times*, October 7, 1975, 55).
- 421 **Fuller looked "adorable":** Valerie Harper, "Bucky: Citizen of the Universe," in *Anthology*, 151.
- 421 **dinner at Trader Vic's:** Jody Jacobs, "Mae Enters—Slowly, Deliberately," *Los Angeles Times*, March 30, 1977.
- 421 **kissing him on the cheek:** "Rocky Mountain 'Hi,'" *Times-News* (Twin Falls, ID), September 24, 1978, 2, photo caption.
- 421 **visited the office:** Ann Mintz, interviewed by author, March 8, 2019.
- 421 **skepticism toward solar power:** Associated Press, "Sun Day Yields Vows of New Era," *Minneapolis Star*, May 4, 1978, 10.
- 421 **"You brought me through":** RBF to John Denver, October 5, 1978, B374-F11.
- 422 **Control of his office:** Edward Schumacher, "Area Colleges End Funds for Buckminster Fuller," *Philadelphia Inquirer*, November 16, 1978, 1.

- 422 **“a whole new life program”**: RBF to Martin Meyerson, October 5, 1978, B374-F9.
- 422 **“I feel a deep responsibility”**: Ibid.
- 422 **“of marginal benefit”**: Edward Schumacher, “The Likely Exit of Fuller: Do These Things Just Happen?,” *Philadelphia Inquirer*, November 19, 1978, 54-M.
- 422 **“not the blue star”**: Ibid.
- 422 **“two very attractive offers”**: Schumacher, “Area Colleges End Funds for Buckminster Fuller,” 1.
- 422 **financed with a large loan**: “Buckminster Fuller Gets Loan to Continue Work Here,” *Philadelphia Inquirer*, February 1, 1979, 2-B. RBF eventually moved his office into the Institute for Scientific Information in the University City Science Center (Eugene Garfield, “A Tribute to R. Buckminster Fuller—Inventor, Philosopher,” *Current Contents*, November 2, 1981, 5).
- 422 **“He has not made a penny”**: Thomas Hine, “Fuller Keeps, for Now, Science Center Office,” *Philadelphia Inquirer*, December 7, 1978, 5D.
- 422 **“He expected a house”**: Joe Fowler, quoted in Neal Gabler, *Walt Disney: The Triumph of the American Imagination* (New York: Vintage Books, 2007), 609.
- 423 **the Houston Astrodome**: Steve Mannheim, *Walt Disney and the Quest for Community* (Aldershot, UK: Ashgate, 2002), 45.
- 423 **“giant golden geodesic dome”**: Epcot press kit, c. 1978, B380-F9.
- 423 **Disney park**: Legault, “Death and Life of Buckminster Fuller’s US Pavilion at Expo 67,” in *Montreal’s Geodesic Dreams*, ed. McAtee, 104.
- 423 **“familiar” with Fuller**: Interview with John Hench, *Disney Parks Blog*, <https://disneyparks.disney.go.com/blog/2012/09/the-scientist-who-inspired-the-name-of-epcots-spaceship-earth> (accessed January 2021).
- 423 **a belated invitation**: Martin A. Sklar to RBF, November 8, 1978, B380-F8.
- 424 **Margaret Mead**: In an undated letter from 1971, Mead questioned one of RBF’s key assumptions: “Do you think it would be possible to say that with the introduction of the square, man became conscious of creating an artificial world, and that this was necessary if we were to have the development of technology?” (B226-F6).
- 424 **“woman anthropologist”**: RBF, office diary entry, June 9, 1944, B59-F4.
- 424 **event in her memory**: Panayis Psomopoulos to RBF, November 18, 1978, B377-F4.
- 424 **“I know she can hear me”**: Jane Howard, *Margaret Mead: A Life* (New York: Fawcett Columbine, 1984), 428.
- 424 **1982 World’s Fair in Knoxville, Tennessee**: Norman Foster, “Buckminster Fuller—File for Future.” Manuscript provided to the author by Norman Foster. A rendering is reproduced at “International Energy Expo ’82, Knoxville, USA,” Norman Foster Foundation Archive, <https://archive>

.normanfosterfoundation.org/en/consulta/registro.do?id=3463 (accessed May 2021).

- 424 “obviously too radical”: Foster, author interview, October 30, 2020.
- 424 “hip pocket”: “Take 5 with Jeff Jarvis,” *San Francisco Examiner*, February 23, 1979.
- 424 “some kind of charity”: Clyde Haberman and Albin Krebs, “No Alms, Please, for R. Buckminster Fuller,” Notes on People, *New York Times*, February 21, 1979, sec. C, 12.
- 424 “I have quite a few million”: Ibid.
- 424 “Great Grandfather”: Sue Fernicola, “5,000 Take Responsibility for Making the World Work,” *News* (Paterson, NJ), February 28, 1979, 12.
- 424 “a huge influx of support”: Jaime Snyder, author interview, April 23, 2019.
- 424 earned him \$63,000: RBF to David Travers, February 11, 1980, B411-F6.
- 425 “He’s eighty-three”: Andy Warhol, *The Andy Warhol Diaries*, ed. Pat Hackett (New York: Warner Books, 1991), 207.
- 425 “Would Mr. Fuller”: Alexandra Snyder May, author interview, June 7, 2019.
- 425 “like little mirror images”: Ibid.
- 425 “Who was that little man, darling?”: Ibid.
- 425 “All of humanity”: RBF, “Learning Tomorrows,” in *R. Buckminster Fuller on Education*, 187–88.
- 425 Fly’s Eye Dome: RBF, *CP*, 310–15.
- 426 “I’ve been thinking about you”: *AMS*, 177.
- 426 buy his own apartment: Jaime Snyder, author interview, February 12, 2019.
- 426 “Reorganizing all its strategies”: RBF, *Grunch of Giants*, xvii.
- 426 In May Fuller toured China: RBF corresponded with the novelist Pearl S. Buck about their shared interest in China (Thomas Zung in *Anthology*, 149 and 376–78). Anwar Dil stated incorrectly that *Operating Manual for Spaceship Earth* was “number one on the list of the ten most widely read American books in the People’s Republic of China today” (RBF and Dil, *Humans in Universe*, 15). In fact, it was mentioned in *Publishers Weekly* (July 31, 1981) as one “of the ten books the Chinese showed the most interest in” at a publishing trade fair (RBF, *Grunch of Giants*, 77).
- 426 China had extended: RBF and Dil, *Humans in Universe*, 14–15, and RBF, *EIK*, session 12.
- 426 “Chinese psycho-guerrilla warfare”: RBF, “Playboy Interview,” *Playboy*, February 1972, 200.
- 426 “anxious” to use: RBF, *CP*, 408
- 426 “grand strategy”: RBF and Dil, *Humans in Universe*, 15. Gao Yuan is identified in a list of Chinese officials in RBF’s itinerary (page following entry for May 10, 1979).

- 426 “You are China”: Ibid.
- 426 “I get so preoccupied”: Applewhite, *Cosmic Fishing*, 90.
- 426 astronaut diaper system: Wigley, *Buckminster Fuller Inc.*, 123.
- 426 discreetly urinate: Ibid.
- 427 “busman’s leg”: Casey Mack, email to author, January 15, 2020. One student at SIU was told that RBF used “a bladder bag” (George Boesel, interviewed in Gowan, *Shared Vision*, 167).
- 427 “standing on head after meals”: Kenner to Guy Davenport, September 6, 1979, reprinted in Davenport and Kenner, *Questioning Minds*, vol. 2, 1701.
- 427 “would be willing to put a price”: RBF to Martin Meyerson, October 5, 1978, B374-F9.
- 427 “I do have the know-how”: RBF to Charles Sachs, January 14, 1980, quoted in Chu, “Archive of R. Buckminster Fuller,” in *New Views on R. Buckminster Fuller*, ed. Chu and Trujillo, 21.
- 427 owed to Werner Erhard: Jonathan Stoller, interviewed by author, May 14, 2019.
- 427 “That’s fine”: Ibid.
- 427 bank sculpture in Dayton, Ohio: Wessels, author interview, March 21, 2019, and Rob Grip, interviewed by author, December 26, 2019.
- 428 “a large manned stratospheric station”: E. C. Okress and R. K. Soberman, “Spherical Tensegrity Atmospheric Research Station (STARS),” June 6, 1978, B370-F3.
- 428 unforgivable sin of “promoting” him: Wessels, author interview.
- 428 plotting features by hand: Christopher Kitrick, interviewed by author, March 10, 2019.
- 428 a tensegrity truss: RBF, *Inventions*, 286–93.
- 428 miscalculated the relative volumes: RBF with Applewhite, *Synergetics* 2, 245.
- 428 “The music of John Cage”: Ibid., 434. The book also featured one of RBF’s more memorable poems: “Universe to each must be / All that is, including me. / Environment in turn must be / All that is, excepting me” (ibid., 3).
- 428 Thomas Zung: Biographical details from Thomas T. K. Zung, “Fuller Today: The Legacy of Buckminster Fuller,” in *Anthology*, 361–62.
- 428 space frame vault: According to Zung, RBF called it “the caterpillar dome” (*Anthology*, 384). Synergetics did the calculations for the vault, but after a windstorm, “structural inadequacies” caused it to sag (“People,” *Daily Reporter* [Dover, OH], May 1, 1971).
- 429 “We’ve been doing some things”: Associated Press, “R. Buckminster Fuller Heads New Corporation,” *Newark (OH) Advocate*, February 28, 1980, 24.
- 429 “I shall never let you down”: Thomas Zung to RBF, February 26, 1980, B411-F3.

- 429 **“Even though Thomas”**: Shoji Sadao, interview with Thomas Devaney, Amy Sadao, Elizabeth Asawa, Marty Griggs, and Tsuneko Sadao, November 22, 2015. Provided to the author by Devaney.
- 429 **“original demonstration”**: RBF to Snelson, December 22, 1949, Series 8, B184-F4.
- 429 **“You even resorted”**: Snelson to RBF, December 31, 1979, Series 8, B184-F4.
- 429 **“I would ask you please”**: Ibid.
- 429 **“hundreds of deceitfully”**: RBF to Snelson, March 1, 1980, Series 8, B184-F4.
- 429 **“He has concluded that I am a charlatan”**: Ibid.
- 430 **“You used to tell me”**: Ibid.
- 430 **“Until then”**: RBF to Snelson, draft letter (unsent), February 11, 1980, B411-F9.
- 430 **“all you will have to do”**: Ibid., March 1, 1980, Series 8, B184-F4.
- 430 **Jaime proposed**: Jaime Snyder, author interview, April 23, 2019.
- 431 **to present the report**: RBF, *CP*, 292.
- 431 **Winooski, Vermont**: AP, “A Town in Vermont Is Bursting at a Bubble Idea,” *New York Times*, March 30, 1980, 26.
- 431 **packaging toilet**: RBF had looked into a packaging toilet for the Wichita House, which William Wasserman remembered as his “self-contained, shit-packaging john” (Hatch, 179), and worked on a design for a “waterless” toilet in George Nelson’s office in the 1950s (Abercrombie, *George Nelson*, 116). He later collaborated on a more finished version with Don Moore (Baldwin, *BuckyWorks*, 30). RBF described its design in RBF, *CP*, 314–15. A prototype for a “dry toilet” is listed in his office inventory (Dymaxion Index, “Section 20. Non-Archive Materials,” Series 4, B8-F9).
- 431 **“completely irrational”**: Roger Stoller, author interview, May 13, 2019.
- 431 **“discourage the volume of requests”**: Bob Baker, “‘Planetary Planner’ in West Hollywood Stays in Orbit with Buckminster Fuller,” *Los Angeles Times*, February 26, 1981.
- 431 **force the ArtCenter**: Roger Stoller, author interview.
- 431 **“I love you, Bucky”**: “Well, Kiss My Dome—It’s a Heady 85th Birthday Bash for Plucky Bucky Fuller,” *People*, July 21, 1980.
- 432 **mesostic poem**: Reprinted in *Your Private Sky*, ed. Krausse and Lichtenstein, 324.
- 432 **Themes and Variations**: John Cage, *Composition in Retrospect* (Cambridge, MA: Exact Change, 1993), 85–86, 154.
- 432 **randomness in art**: John Cage to Jerry Novesky, February 9, 1972, in *The Selected Letters of John Cage*, ed. Laura Kuhn (Middletown, CT: Wesleyan University Press, 2016), 417.

- 432 **“We’ll be remembered”:** Peder Anker, *From Bauhaus to Ecohouse: A History of Ecological Design* (Baton Rouge: Louisiana State University Press, 2010), 68.
- 432 **more recent acquaintances:** The journalist Richard J. Brenneman arranged for Fuller to explain the principles of synergetics in conversations with three schoolchildren, which were published as *Fuller’s Earth*. The children were Rachel Myrow, Benjamin Mack, and Jonathan Nesmith, the son of musician-songwriter Michael Nesmith of the Monkees (Brenneman, *Fuller’s Earth*, xx).
- 432 **talks “on tensegrity and cosmic energy”:** Thomas T. K. Zung, “Fuller Today: The Legacy of Buckminster Fuller,” in *Anthology*, 370.
- 432 **Los Angeles Bicentennial:** Alice Rawsthorn, “The Prescient Vision of a Gentle Revolutionist,” *New York Times*, May 12, 2013.
- 433 **Kiyoshi Kuromiya:** Biographical details drawn from “Life of Kiyoshi Kuromiya,” *NBC News*, March 7, 2015, <https://www.nbcnews.com/storyline/527elma-50th-anniversary/527elma-marcher-aids-activist-life-steven-kuromiya-n318876> (accessed May 2021).
- 433 **“positive personality”:** “Positively Good Guys Honored,” *Miami Herald*, April 4, 1973, 18-A.
- 433 **typist at the office:** Sharkey, author interview, March 18, 2019.
- 433 **“adjuvant,” or writing assistant:** “I have served as adjuvant, a term Fuller borrowed from medicine (specifically immunology) in 1980 to designate my role in the writing of *Critical Path*” (Kiyoshi Kuromiya, in RBF, *Cosmography*, vii). *Merriam-Webster* defines *adjuvant* as “one that helps or facilitates”—for instance, by “enhancing the immune response to an antigen.”
- 433 **“fucking impossible”:** Denny, author interview, March 22, 2019.
- 433 **Fuller was “totally” involved:** Ibid.
- 433 **“best and most important book”:** RBF, *SD*, xxviii.
- 433 **“would feel happy”:** RBF, *CP*, xiii.
- 433 **critical path method:** The term was used in RBF’s circle by 1974, when a World Game workshop “surveyed all known sources of energy and devised ten-year ‘Critical Path’ strategies for getting there from here” (Kenner, “Bucky Fuller and the Final Exam,” *New York Times Magazine*, July 6, 1975, 10). The results were published by Medard Gabel in *Energy, Earth, and Everyone*.
- 433 **“Two million things”:** RBF, *CP*, xviii.
- 434 **“a very reluctant player”:** Ibid., 116.
- 434 **“get out their guns”:** Ibid., 217.
- 434 **“The ‘greenhouse’ effect”:** Ibid., 112.
- 434 **Fuller framed his proposals as an “icebreaker”:** Ibid., 249.
- 434 **rendering existing systems obsolete:** “World Game is Anti-Obnoxious and commits itself to making Obnoxious and allied activities obsolete rather

- than attacking it directly” (ibid., 226). RBF claimed to have made a similar statement at his first meeting with Nehru: “I must actually find a tool that solves the problem—makes what is going on obsolete” (RBF, *EIK*, session 7). Over time, this would be refined into a more elegant but apocryphal quote: “You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete” (for example, Rick Ingrasci in Sieden, *Fuller View*, 236).
- 434 “friendliness” to “moon rocks”: RBF, *CP*, 221.
- 434 “that the greatest luxury”: Ibid., 263.
- 434 “The larger the number”: Ibid., 125. A nearly identical passage appeared in 1967 in the essay collected as “Buckminster Fuller Chronofile” (*BFR*, 17).
- 434 “What you want for yourself”: RBF, *CP*, 269.
- 435 “no change”: RBF, *Nine Chains*, xvii.
- 435 “That’s not the case”: Denneny, author interview.
- 435 “Oh, I don’t mind”: Emily Gaudette and Zach Schonfeld, “Ellen Burstyn on ‘House of Tomorrow,’ Bad Horror Movies, and Why #MeToo Is ‘the Biggest Thing That’s Happened in My Life,’” *Newsweek* online, last modified April 27, 2018, <https://www.newsweek.com/ellen-burstyn-house-tomorrow-patriarchy-buckminster-fuller-903463>. A similar version appears in Burstyn, *Lessons in Becoming Myself* (New York: Riverside Books, 2006), 281–82.
- 435 “mystically inspired”: RBF to Elizabeth Channing Fuller, December 10, 1976, quoted in Hsiao-Yun Chu, “R. Buckminster Fuller’s Model of Nature” (doctoral thesis, University of Brighton, 2014), 100.
- 435 Jerry Brown, Jonas Salk, and Woody Allen: RBF had contributed an illustrated introduction to Woody Allen and Stuart Hample, *Non-Being and Somethingness* (New York: Random House, 1978), a collection of the comic strip *Inside Woody Allen*. “I thought it was wonderful, fascinating, imaginative, and presented me as a far deeper and more interesting character than I really am” (Woody Allen to RBF, April 11, 1979, B389-F8).
- 435 “It’s criminal that he doesn’t”: John Duka, “Buckminster Fuller: Celebrating the 86th,” *New York Times*, July 9, 1981, sec. 3, 1.
- 436 “a famous surfer”: Roger Stoller, author interview, May 13, 2019.
- 436 “I did not like the way”: Alexandra Snyder May, author interview, May 17, 2019.
- 436 “She could really teach you”: Ibid.
- 436 “sweet, supportive granddaughter”: Ibid.
- 436 “I would like to take advantage”: Amy Edmondson, *A Fuller Explanation: The Synergetic Geometry of R. Buckminster Fuller* (Boston: Birkhäuser, 1987), 5.
- 437 “I hadn’t yet seen Bucky Fuller”: Amy Edmondson, quoted in Baldwin, *BuckyWorks*, 141.

- 437 had met with Fuller: Itinerary, September 23, 1980.
- 437 “Money and You”: Margery Eagan, “On the Righteous Road to Riches,” *Burlington (VT) Free Press*, August 13, 1978, sec. C, 1.
- 437 Robert Kiyosaki: Robert Kiyosaki, *Second Chance: For Your Money, Your Life and Our World* (Plata Publishing, 2015, EPUB ed.), 78.
- 437 Mark Victor Hansen: Brochure for Dome East Corporation, 1973, B268-F4.
- 438 “You invited me to talk”: Morton, “Fuller—Nine Epiphanies,” in *Anthology*, 83.
- 438 hexagonal hanging bookshelf: RBF, *Inventions*, 294–98.
- 438 Gigundo Dome: Photo caption, *Anthology*, 391.
- 438 “double deresonated dome”: Foster, “Richard Buckminster Fuller,” in *Anthology*, 1.
- 438 “self-isolation”: Applewhite, *Cosmic Fishing*, 153.
- 438 “You never know”: *The Buckminster Fuller Institute Newsletter*, October 1983, quoted in Pawley, *Buckminster Fuller*, 171.
- 438 “I think I’d like”: Allegra Fuller Snyder, author interview, March 26, 2019.
- 439 “a mild but definite encephalopathy”: Dr. John C. Wilson, “To Whom This May Concern,” August 2, 1982, B489-F9.
- 439 dreamed about an award: Jaime Snyder, author interview, April 23, 2019.
- 439 songs for a television special: Mark Stouffer, teleplay for *What One Man Can Do*, B496-F7.
- 439 “It does not seem to me”: RBF to John Denver, January 3, 1982, B450-F8.
- 439 “operating only as a beneficiary”: Ibid.
- 439 “longest time in one place”: Jaime Snyder in *Synergetic Stew*, 111.
- 439 DeLand, Florida: Al Truesdell, “Fuller Made Volusia a Part of His Dream,” *Orlando (FL) Sentinel*, July 10, 1983.
- 439 Friends of Buckminster Fuller: Jaime Snyder, author interview, April 23, 2019.
- 440 “There’s one thing”: Brown, author interview, April 16, 2019.
- 440 “When we went back”: Ibid.
- 440 “in an intelligent way”: Jaime Snyder, email to author, April 27, 2021.
- 440 United States House of Representatives: Itinerary, December 16, 1982. At the talk, RBF’s staff members dropped fifty thousand bingo markers on the map to illustrate the devastation of a nuclear war (“Dymaxion Map Displayed,” *Buckminster Fuller Institute Newsletter*, February 1983, Series 7, B10-F13).
- 440 Spruce Goose: John Davies, “Hoopla Marks Start of Dome for Flying Boat,” *News-Pilot* (San Pedro, CA), April 30, 1981.
- 441 “It’s not ours”: Thomas Zung, interviewed by author, March 12, 2019.
- 441 Spaceship Earth: Construction details based on John P. Grossman and Glenn R. Bell, “Spaceship Earth: Epcot Center’s Gateway to Tomorrow,”

- Modern Steel Construction*, 4th Quarter, 1982. A second geodesic dome at Epcot, the Wonders of Life dome, was engineered by Don Richter and Temcor (RBF, “Epcot,” *Buckminster Fuller Institute Newsletter*, February 1983, Series 7, B10-F13). Richter and Thomas Zung also contributed to the tetrahedral design of the external panels for Spaceship Earth (Zung, author interview).
- 441 **“We regret to inform you”**: Disney form letter, c. 1983, Series 7, B10-F13.
- 441 **“my Cambridge, Massachusetts, engineers”**: RBF, “Epcot,” *Buckminster Fuller Institute Newsletter*, February 1983, Series 7, B10-F13.
- 441 **“It must have been their business people”**: Ibid.
- 441 **Home of the Future**: “‘Home of the Future’ Fair’s Ice Cream Soda?,” *World’s Fair Guide*, in *Kingsport (TN) Times-News*, April 29, 1982, 51.
- 441 **“Well, old man?”**: Baldwin, *BuckyWorks*, 224.
- 441 **“in case I was expecting”**: Goodwin (Kaiser), author interview, March 22, 2019.
- 442 **“He manipulated the model”**: John Litweiler, *Ornette Coleman: A Harmolodic Life* (New York: Da Capo, 1994), 186.
- 442 **“number one hero”**: Syd Fabio, “Ornette Coleman—*Prime Design/Time Design*,” *Rock Salted*, December 19, 2017, <http://rocksalted.com/2017/12/ornette-coleman-prime-design-time-design> (accessed January 2021). Coleman made the remark in the documentary *Ornette: Made in America*.
- 442 **“I have always had the experience”**: RBF and Dil, *Humans in Universe*, 135.
- 442 **her husband’s interpreter**: Kenner to Guy Davenport, December 27, 1972, reprinted in Davenport and Kenner, *Questioning Minds*, vol. 2, 1433.
- 443 **“You know, that Bucky”**: Jaime Snyder, author interview, April 23, 2019.
- 443 **“the very few”**: Archibald MacLeish to President Jimmy Carter, February 24, 1978, Series 7, B10-F10.
- 443 **“If there is a living contemporary”**: Ibid.
- 443 **“a true Renaissance man”**: “Remarks at the Presentation Ceremony for the Presidential Medal of Freedom,” *The American Presidency Project*, <https://www.presidency.ucsb.edu/documents/remarks-the-presentation-ceremony-for-the-presidential-medal-freedom-0> (accessed January 2021).
- 443 **“A farce”**: Bob Baker, “‘Planetary Planner’ in West Hollywood Stays in Orbit with Buckminster Fuller,” *Los Angeles Times*, February 26, 1981, sec. 9, 1.
- 443 **“a dumb actor”**: Robert Anton Wilson, “Interview: Buckminster Fuller,” *High Times*, May 1981, 37.
- 443 ***Grunch of Giants***: RBF dedicated the book to three people: Margaret Fuller; Marilyn Ferguson, who named RBF as one of the thinkers frequently mentioned as an influence on the New Age in *The Aquarian Conspiracy: Personal and Social Transformation in the 1980s* (Los Angeles: J. P. Tarcher, 1980), 420; and the futurist Barbara Marx Hubbard.

- 443 “Gross Universe Cash Heist”: RBF, *Grunch of Giants*, 1.
- 443 “the most negatively momentous”: Ibid., 50.
- 443 “the Reagan government’s reduction of taxes”: Ibid., 72.
- 444 “the Republican Party of Lincoln”: Ibid., 73.
- 444 “It would take another fifty years”: Ibid., 86.
- 444 known as a realist: AMS, 197.
- 444 he would resign: RBF, “Epilogue,” in *UOO*, 343.
- 444 more than a thousand attendees: Jaime Snyder, author interview, April 23, 2019.
- 444 “reduces the credibility”: RBF, “Guinea Pig B,” in *Inventions*, xii.
- 444 “An individual”: Jaime Snyder, email to author, February 16, 2021.
- 444 “a curriculum vitae”: Michael Denny, “Bucky’s Apologia,” in *Anthology*, 280.
- 445 “experimental data”: Ibid., 282.
- 445 *Inventions: The Patented Works of R. Buckminster Fuller*: RBF had used a similar title for a boxed portfolio, *Inventions: Twelve Around One*, that he produced with Carl Solway in an edition of sixty in 1981 (Buckminster Fuller Institute catalog, undated, provided to the author by Solway).
- 445 “publicly declaring yourself”: RBF, “Guinea Pig B,” vii.
- 445 “miracles that occur”: Ibid., xxviii.
- 445 “Fortunately, this gambling”: Ibid., xxx.
- 445 line of praise “to God”: RBF, *Cosmography*, 169.
- 445 “Grandma, you have to spit that out”: Jaime Snyder, author interview, April 23, 2019.
- 445 “was basically starving to death”: Allegra Fuller Snyder, “Notes on Anne and Bucky Fuller’s Deaths,” <https://www.bfi.org/about-fuller/biography/notes-anne-and-bucky-fullers-deaths> (accessed January 2021).
- 445 stalled escalator: Sieden, *Buckminster Fuller’s Universe*, 415.
- 445 “ran out of wind”: RBF to Henry Gomperts, June 18, 1983, B488-F5.
- 446 “Bucky did *not* ask me”: Shirley Sharkey to Calvin Tomkins, June 13, 1983, B487-F7.
- 446 “instructions from the master”: Foster, author interview, October 30, 2020.
- 446 “very much bigger”: “Transcript of Meeting/Conversation Between Norman Foster, Buckminster Fuller, and James Meller,” June 1983, 1. Provided to the author by Norman Foster.
- 446 “I think it is your world”: Ibid., 2.
- 446 “pull the plug”: Norman Foster, “Richard Buckminster Fuller,” <https://www.fosterandpartners.com/media/546507/essay12.pdf> (accessed January 2021).
- 446 “the longest, most exhausting day”: Sharkey, author interview, March 18, 2019.
- 446 “the sweetest”: Ibid.

- 446 **punctured her esophagus:** Allegra Fuller Snyder, “Notes on Anne and Bucky Fuller’s Deaths.”
- 446 **Fuller wondered aloud:** Jaime Snyder, author interview, April 23, 2019.
- 447 **“Do you see that?”:** Allegra Fuller Snyder, author interview, March 26, 2019.
- 447 ***Mister God, This Is Anna:*** Jaime Snyder, author interview, April 23, 2019.
- 447 **“I think she’s worried”:** Allegra Fuller Snyder, author interview.
- 447 **“She’s squeezing my hand”:** Ibid.
- 447 **“After he had died”:** Allegra Fuller Snyder, “Notes on Anne and Bucky Fuller’s Deaths.”
- 448 **“so beautifully”:** John Cage to Norman O. and Beth Brown, July 14, 1983, in *Selected Letters of John Cage*, 533.
- 448 **“It said to me things”:** Alexandra Snyder May, author interview, May 17, 2019.
- 448 **letter to Annie Dillard:** Edgar J. Applewhite to Gerald Dickler, June 22, 1983, B488-F10.
- 448 **“Dear reader”:** RBF, *Cosmography*, 264.
- 448 **“a thoroughgoing original”:** Albin Krebs, “R. Buckminster Fuller Dead: Futurist Built Geodesic Dome,” *New York Times*, July 2, 1983, 1.
- 448 **“a somewhat curious cult figure”:** Paul Goldberger, “An Apostle of Technology: An Appreciation,” *New York Times*, July 3, 1983, 17.
- 448 **Mount Auburn Cemetery:** “Fullers Buried in Cambridge,” *Boston Globe*, July 9, 1983, 27.
- 448 **“sentimental and small”:** Silverman, *Begin Again*, 345.
- 449 **Fuller’s most spectacular memorial:** A separate memorial service was hosted at the American Society for Metals dome in Ohio by Governor Richard F. Celeste (Thomas Zung to Allegra Fuller Snyder, October 13, 1983, B496-F4, and Thomas T. K. Zung, “A Fuller Family,” in *Anthology*, 413–14).
- 449 **“I go right on seeing them”:** Morton, “Fuller—Nine Epiphanies,” in *Anthology*, 82.
- 449 **“Almighty and everlasting God”:** Ibid., 83.
- 449 **“Eternal Father, strong to save”:** Ibid.
- 449 **CALL ME TRIMTAB:** “R. Buckminster Fuller,” Find a Grave, <https://www.findagrave.com/memorial/1403/r-buckminster-fuller> (accessed January 2021).
- 449 **“The behavior of ‘Universe’”:** RBF with Applewhite, *Synergetics*, 86.

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- 451 **“It could be that by traveling”:** Ibid., 288.
- 451 **“Because life is three-dimensional design”:** Adapted from Donald E. Ingber, “Spanning the Divide,” *SciArt*, last modified October 2018, <https://www.sciartmagazine.com/spanning-the-divide.html>.

- 452 who had been “wowed”: Donald E. Ingber, interviewed by author, March 12, 2019.
- 452 “bounced up off the dish”: Ingber, “Spanning the Divide.”
- 452 “The tensegrity must have changed!”: Donald E. Ingber, “Tales of Discovery from a Life Without Borders” (lecture, Wyss Institute for Biologically Inspired Engineering, Harvard University, June 13, 2009), available at <https://wyss.harvard.edu/news/ingber-dartmouth-medical-school-class-day-lecture>.
- 452 “Those who are versed”: RBF, “Conceptuality of Fundamental Structures,” in *Structure in Art and in Science*, ed. Kepes, 88. The images of geodesic structures in tissue were by Dr. Arthur von Hochstetter (ibid., 76–77).
- 453 article about his work: D. E. Ingber and J. D. Jamieson, “Tumor Formation and Malignant Invasion: Role of Basal Lamina,” in *Tumor Invasion and Metastasis*, ed. L. A. Liotta and I. R. Hart (The Hague: Martinus Nijhoff, 1982), 335–57.
- 453 “Cancer may then be viewed”: Donald E. Ingber to RBF, April 5, 1983. Provided to the author by Ingber.
- 453 “I would just like”: Ibid.
- 453 “The whole encounter”: Ingber, “Spanning the Divide.”
- 454 “elated” by his ideas: RBF to Donald E. Ingber, April 11, 1983. Provided to the author by Ingber.
- 454 “setting up a network”: Undated staff member note to RBF (1983), B489-F4.
- 454 “You are the first one”: RBF to Donald E. Ingber, May 18, 1983. Provided to the author by Ingber.
- 454 “I believe he was telling me”: Ingber, “Spanning the Divide.”
- 454 explored these constructions: Donald E. Ingber and James D. Jamieson, “Cells as Tensegrity Structures: Architectural Regulation of Histodifferentiation by Physical Forces Transduced over Basement Membrane,” in *Gene Expression During Normal and Malignant Differentiation*, ed. Leif C. Anderson, Carl G. Gahmberg, and P. Ekblom (Orlando, FL: Academic Press, 1985), 13–32.
- 455 “My presentation”: Ingber, “Spanning the Divide.”
- 456 “If you stop using the word”: Ingber, author interview.
- 456 scientific claims of tensegrity: A related but distinct line of argument conceives of anatomical features on a larger scale as tensegrity structures. See Randel L. Swanson II, “Biotensegrity: A Unifying Theory of Biological Architecture with Applications to Osteopathic Practice, Education, and Research—A Review and Analysis,” *Journal of the American Osteopathic Association* 113, no. 1 (January 2013): 34–52.
- 456 paper from the seventies: P. C. Rathke, M. Osborn, and K. Weber, “Immunological and Ultrastructural Characterization of Microfilament

- Bundles: Polygonal Nets and Stress Fibers in an Established Cell Line,” *European Journal of Cell Biology* 19 (January 1979): 40–48. Ingber also drew on E. Lazarides, “Actin, alpha-Actinin, and Tropomyosin Interactions in the Structural Organization of Actin Filaments in Nonmuscle Cells,” *Journal of Cell Biology* 68, no. 2 (February 1976): 202–19.
- 457 “It was like touching the heartstrings”: “Sculpting Life,” *Boston Globe*, July 26, 2004.
- 457 **R. Buckminster Fuller Professorship of Design Science**: Harvard Graduate School of Design announcement, <https://www.gsd.harvard.edu/2021/04/harvard-gsd-announces-establishment-of-the-r-buckminster-fuller-professorship-of-design-science> (accessed May 2021).
- 458 “middle zone”: David Edwards, *ArtScience: Creativity in the Post-Google Generation* (Cambridge, MA: Harvard University Press, 2008), 132.
- 458 “In the end”: Donald E. Ingber, email to author, December 26, 2020.
- 458 “What the hell am I doing?”: Ingber, author interview.
- 458 “Imagine human beings”: RBF, *EIK*, session 3.
- 458 “a kind of pilgrimage”: Margaret Kroto, email to author, September 6, 2020.
- 459 “on the organized growth”: Harold W. Kroto, “C₆₀: Buckminsterfullerene, the Celestial Sphere That Fell to Earth,” *Angewandte Chemie* 31, no. 2 (February 1992): 117.
- 459 **Rice University**: Details of the team’s work at Rice are based on Hugh Aldersey-Williams, *The Most Beautiful Molecule: The Discovery of the Buckyball* (New York: John Wiley & Sons, 1995), 52–90, and Jim Baggott, *Perfect Symmetry: The Accidental Discovery of Buckminsterfullerene* (New York: Oxford University Press, 1994), 34–76.
- 459 “cockamamie theory”: Richard E. Smalley, oral history, interviewed by Robbie Davis Floyd, January 22, 2000, 17, <http://www.davis-floyd.com/smalley6>.
- 459 “I thought Harry”: Ibid.
- 459 “What’s the worst?”: Richard E. Smalley interview in “Race to Catch a Buckyball,” *Nova* television episode, December 19, 1995.
- 460 “the mother wodge”: Aldersey-Williams, *Most Beautiful Molecule*, 67.
- 460 “Who was that guy?”: Smalley, interviewed by Robbie Davis Floyd, 9.
- 461 “Here, after all, we had a hexagonal sheet”: Richard E. Smalley interview in “Race to Catch a Buckyball,” *Nova* television episode, December 19, 1995.
- 461 “Juicy Fruit gum balls”: Richard E. Smalley, “Great Balls of Carbon,” *The Sciences*, March 1991, 24.
- 462 “ecstatic and overtaken by its beauty”: Harold W. Kroto, “C₆₀: Buckminsterfullerene, the Celestial Sphere,” 117.
- 462 “I could explain this to you”: Aldersey-Williams, *Most Beautiful Molecule*, 76.

- 462 **soccer ball's familiar pattern:** In 1978 RBF explored an unproduced design for a "Dymaxion Soccer Ball" (Series 19, Mixed Materials 86), and he would sometimes be credited incorrectly with the standard arrangement of a soccer ball's panels (Lloyd Alter, "Did Bucky Fuller Really Design a Soccer Ball?," October 11, 2018, archived at <https://web.archive.org/web/20201112041208/https://www.treehugger.com/did-bucky-fuller-really-design-soccer-ball-4855430>).
- 462 **The proposals included "ballene":** Aldersey-Williams, *Most Beautiful Molecule*, 76.
- 462 **"Your name sucks":** Margaret Kroto, email to author, January 21, 2021.
- 463 **"an unforgettable name":** Robert Curl, email to author, September 7, 2020.
- 463 **"Only a spheroidal structure":** H. W. Kroto et al., " C_{60} : Buckminsterfullerene," *Nature* 318 (November 1985): 162–63, <https://doi.org/10.1038/318162a0>.
- 463 **might yield a "super-lubricant":** Ibid.
- 463 **like the "inadvertencies":** RBF, "Geosocial Revolution," in *UOO*, 166.
- 464 **references to "buckyballs":** Among the earliest print references was an Associated Press article, "Rice Researchers Find Carbon 60 'Buckyballs,'" *Tyler (TX) Courier-Times*, December 23, 1985, 9.
- 464 **"We refined":** Smalley, interviewed by Robbie Davis Floyd, 9.
- 464 **"commit suicide":** Harold W. Kroto, " C_{60} : Buckminsterfullerene, the Celestial Sphere," 119.
- 464 **"The geodesic ideas":** E. J. Applewhite, "The Naming of Buckminsterfullerene," in *Anthology*, 332.
- 464 **Fuller knew well:** RBF, "Twelve Pentagons," in *SD*, 19255.
- 465 **Lone Ranger and Tonto:** Baggott, *Perfect Symmetry*, 56.
- 465 **Bucky and Mrs. Bucky:** Ibid., 269.
- 465 **"round" chemistry:** Ibid., 214.
- 466 **Because a "buckytube":** *Merriam-Webster* defines "buckytube" as "a nanotube composed of pure carbon with a molecular arrangement similar to that of a fullerene."
- 466 **Bruce Sterling called "buckyjunk":** Bruce Sterling, "Dawn of the Carbon Age," *Wired*, December 2005.
- 466 **"The name has given it":** Harold W. Kroto, blurb for *Anthology*.
- 466 **unsuitable as lubricants:** Aldersey-Williams, *Most Beautiful Molecule*, 252.
- 466 **a spectrum of C_{60} ions:** E. K. Campbell et al., "Laboratory Confirmation of C_{60}^+ as the Carrier of Two Diffuse Interstellar Bands," *Nature* 523 (2015): 322–23, <https://doi.org/10.1038/nature14566>.
- 466 **Hubble Space Telescope:** Evan Gough, "Hubble Finds Buckyballs in Space," *Universe Today*, last modified June 26, 2019, <https://www.universetoday.com/142644/hubble-finds-buckyballs-in-space>.

- 467 **"If fullerenes have been present":** Richard E. Smalley, "Great Balls of Carbon," *The Sciences*, March 1991, 28.
- 467 **"Buckminster Fuller would have loved it":** Ibid.
- 467 **"One guy":** Sonia Rao, "Tag, You're It!," *Washington Post*, January 6, 2019, <https://www.washingtonpost.com/arts-entertainment/2019/01/07/tag-youre-it-heres-full-transcript-jeff-bridgess-wacky-golden-globes-speech/> (accessed January 2021).
- 467 **"When he dies":** Kenner, *Bucky*, 262.
- 468 **conflict erupted over the World Game:** Among its successors was the Global Energy Network Institute, which was founded in 1986 to promote RBF's idea of a global energy grid ("About Us," http://www.geni.org/globalenergy/about_us/index.shtml [accessed December 2020]).
- 468 **"warring factions":** Alexandra Snyder May, author interview, June 7, 2019.
- 468 **sold Fuller's archives:** Chu, "Archive of R. Buckminster Fuller," in *New Views on R. Buckminster Fuller*, ed. Chu and Trujillo, 22.
- 468 **tetrahelix memorial:** Sadao, 225. In the course of this project, it was discovered that RBF had described the repeating structure of the tetrahelix incorrectly.
- 468 **occupied by raccoons:** Baldwin, *BuckyWorks*, 56. Another alleged detail of the Wichita House's afterlife was even more ignominious: "It appears to have become, for a short time, a house of ill-repute, and was even painted pink to entice the airmen as they flew into Wichita" (Gorman, *Designing for Mobility*, 76).
- 468 **explored onstage and in fiction:** Works inspired by RBF's life included the one-person play *R. Buckminster Fuller: The History (and Mystery) of the Universe* by D. W. Jacobs (2000); *The Love Song of R. Buckminster Fuller*, a multimedia project by the filmmaker Sam Green and the alt-rock band Yo La Tengo (2012); and the novel *The House of Tomorrow* by Peter Bognanni (2010), which was adapted into a feature film in 2017. The movie starred Ellen Burstyn, who also appeared in archive footage with RBF.
- 468 **unveiled a postage stamp:** Thomas T. K. Zung, "Fuller Today: The Legacy of Buckminster Fuller," in *Anthology*, 370–71.
- 468 **"Piles of them":** Donald E. Ingber, "Utopia or Oblivion Revisited." Manuscript provided to the author by Ingber.
- 468 **Carlos Castaneda:** In the nineties, Castaneda promoted "Tensegrity," which was described as a system of "ancient, energy-gathering movements" (advertisement in "Bulletin Board Annex," *LA Weekly*, March 2, 1995).
- 468 **Oliver Stone:** In an introduction to L. Fletcher Prouty's *JFK: The CIA, Vietnam, and the Plot to Assassinate John F. Kennedy* (New York: Birch

- Lane Press / Carol, 1992), xiv, Stone commended the author for “bringing back the ghost of Buckminster Fuller and his great book, *The Critical Path* [sic].”
- 468 **“colossuses in China”**: Nicolai Ouroussoff, “Fixing Earth One Dome at a Time,” *New York Times*, July 4, 2008, E23.
- 468 **“a privilege to spend”**: Foster, author interview, October 30, 2020.
- 468 **“diagrid” framework**: Ian Volner, “Dissecting Diagrid,” *Architect*, October 5, 2011, https://www.architectmagazine.com/technology/dissecting-diagrid_o (accessed January 2021).
- 469 **“The idea that somebody”**: Cynthia Haven, “Stanford Libraries Acquire the Archives of Leading Environmentalist William McDonough,” *Stanford News Service*, November 15, 2012, <https://news.stanford.edu/pr/2012/pr-libraries-mcdonough-archives-111512.html> (accessed January 2021).
- 469 **“in a very free”**: Renzo Piano, *Logbook* (New York: Monacelli Press, 1997), 22.
- 469 **“Fuller did everything wrong”**: Thom Mayne, *ArtForum*, November 2008, <https://www.artforum.com/print/200809/thom-mayne-41980> (accessed January 2021).
- 469 **“He will put the data”**: RBF, *Education Automation*, 85.
- 469 **Medusa**: Frank Gehry, *Gehry Talks: Architecture + Process*, ed. Mildred Friedman (New York: Rizzoli, 1999), 214–15.
- 469 **James Dyson**: “My History Hero: Buckminster Fuller (1895–1983),” July 6, 2012, <https://www.historyextra.com/period/20th-century/my-history-hero-buckminster-fuller-1895-1983> (accessed May 2021).
- 469 **Yves Béhar**: Yves Béhar interview, “Buckminster Fuller: Utopia Rising,” <https://www.nowness.com/story/buckminster-fuller-utopia-rising> (accessed February 2021).
- 469 **Roman Mars**: “Bucky Fuller is also responsible for the title of this radio show. He said, ‘99% of who you are is invisible and untouchable’” (Roman Mars in “Derelict Dome,” 99% *Invisible*, October 25, 2012, <https://99percentinvisible.org/episode/episode-64-derelict-dome> [accessed May 2021]). Various versions of this quotation exist, including “Reality is more than 99 percent invisible” (RBF, *Earth, Inc.*, 62).
- 469 **“He was organizing his present”**: Olafur Eliasson, interviewed by author, August 29, 2019.
- 469 **Bill McKibben**: “Marshall McLuhan . . . coined the term ‘global village.’ Fuller’s ‘Spaceship Earth’ is the other great description of our planet from the moment of new insight that coincided with the first views back from outer space” (Bill McKibben, ed., *American Earth: Environmental Writing Since Thoreau* [New York: Penguin, 2008], 464).
- 469 **Al Gore**: Gore served on the Congressional Clearinghouse on the Future, which invited RBF to speak on April 19, 1978 (Itinerary, and Al Gore, *The*

- Future: Six Drivers of Global Change* [New York: Random House, 2013], xvi). He later drew on RBF's metaphors of Earth, Inc. (*The Future*, 4) and Spaceship Earth (Al Gore, "Al Gore Weighs In on a Long-Delayed Earth Observatory Launch," *Scientific American* online, last modified February 6, 2015, <https://www.scientificamerican.com/article/al-gore-weighs-in-on-sunday-s-long-delayed-earth-observatory-launch>).
- 469 **"A tremendous mind":** "Drilling Deeper," *PB Oil & Gas*, October 1, 2013, <https://pboilandgasmagazine.com/drilling-deeper-october-2013> (accessed January 2021).
- 470 **"What are you going to do about it?":** Russell Gold, *The Boom: How Fracking Ignited the American Energy Revolution and Changed the World* (New York: Simon & Schuster, 2014), 95.
- 470 **"the father of fracking":** Tom Fowler, "'Father of Fracking' Dies at 94," *Wall Street Journal*, July 26, 2013.
- 470 **Richard Dawkins:** "I was once privileged to hear [RBF], in his nineties [*sic*], lecturing for a mesmerizing three hours without respite" (Richard Dawkins, *Climbing Mount Improbable* [New York: W. W. Norton, 1996], 234).
- 470 **its basic "epiphany":** John P. Allen and Kathelin Gray interview with Hans Ulrich Obrist, <https://www.synergeticpress.com/wp-content/uploads/2018/08/Mousse2017allenhoffmanulrich.pdf> (accessed January 2021).
- 470 **"The idea that Bucky had":** Ibid.
- 470 **"They are visionaries":** Marc Cooper, "The Profits of Doom: The Biospherians Lure Scientists to a High-Price Feast Under Glass," *Phoenix New Times*, June 19, 1991.
- 470 **appeared in NASA proposals:** "The US government is specifying in its bids for space structures the octet truss (my copyrighted trademark name) for all the main structuring for space stations" (RBF, *Inventions*, 167). A more accurate characterization would be that tetrahedral trusses were seen as "an excellent configuration for preliminary studies" (Martin M. Mikulas Jr., Harold G. Bush, and Michael F. Card, "Structural Stiffness, Strength and Dynamic Characteristics of Large Tetrahedral Space Truss Structures," NASA technical memorandum, March 1977, 1), but the octet truss was rarely mentioned by name. RBF had a more direct influence on the Super Ball Bot, a NASA prototype based on a tensegrity icosahedron ("Super Ball Bot," September 10, 2014, <https://www.nasa.gov/content/super-ball-bot>).
- 470 **Hawaii Space Exploration Analog and Simulation:** Marina Koren, "When a Mars Simulation Goes Wrong," *Atlantic*, June 22, 2018.
- 470 **Mars Science City:** Poppy Koronka, "Architects Have Designed a Martian City for the Desert Outside Dubai," June 10, 2020, <https://www.cnn.com/style/article/mars-science-city-design-spc-scn/index.html> (accessed May 2021).

- 470 **poorly suited for Mars:** Casey Handmer, “Domes Are Over-Rated,” <https://caseyhandmer.wordpress.com/2019/11/28/domes-are-very-over-rated> (accessed May 2021).
- 471 **technology company Foxconn:** Josh Dzieza, “The 8th Wonder of the World,” *The Verge*, October 19, 2020, <https://www.theverge.com/21507966/foxconn-empty-factories-wisconsin-jobs-loophole-trump> (accessed May 2021).
- 471 **“geodesic domes”:** “Welcome to Fyre Festival,” April 15, 2017, <https://medium.com/@fyrefestival/welcome-to-fyre-festival-c8a565cd401> (accessed January 2021).
- 471 **Hurricane Katrina:** Alice Rawsthorn, “Can Fuller Be Rehabilitated as a 21st Century Design Hero?,” *New York Times*, June 20, 2008.
- 471 **overflow morgues:** Photo in Khaleda Rahman, “New York City Builds Makeshift Morgue to Handle Expected Rise in Coronavirus Deaths,” *Newsweek*, March 26, 2020, <https://www.newsweek.com/nyc-erects-temporary-morgue-handle-rise-coronavirus-deaths-1494423> (accessed May 2021).
- 471 **“We’re talking about domes”:** Soleil Ho, “SF Restaurant’s \$200-Per-Person Dome is America’s Problems in a Plastic Nutshell,” *San Francisco Chronicle*, August 12, 2020, <https://www.sfchronicle.com/restaurants/article/The-200-per-person-fine-dining-dome-is-15475555.php> (accessed January 2021).
- 471 **“We want to be known”:** Katrina Brooker, “WeFail,” *Fast Company* online, last modified November 15, 2019, <https://www.fastcompany.com/90426446/wefail-how-the-doomed-masa-son-adam-neumann-relationship-set-wework-on-the-road-to-disaster>.
- 471 **“future cities initiative”:** Niall Patrick Walsh, “The We Company Launches Future Cities Initiative with Studio Dror,” *ArchDaily*, March 22, 2019, <https://www.archdaily.com/913746/the-we-company-launches-future-cities-initiative-with-studio-dror> (accessed January 2021).
- 471 **“The universe does not allow waste”:** Reeves Wiedeman, *Billion Dollar Loser: The Epic Rise and Spectacular Fall of Adam Neumann and WeWork* (New York: Little, Brown, 2020), 136.
- 471 **“maybe in the way”:** Lanier, author interview, March 12, 2019.
- 471 **geodesic domes on Mars:** John Brownlee, “Elon Musk Wants to Build a Martian Colony out of Geodesic Domes,” *Fast Company* online, last modified October 24, 2016, <https://www.fastcompany.com/3064918/elon-musk-wants-to-build-a-martian-colony-out-of-geodesic-domes>.
- 472 **“where employees can think”:** The Spheres, <https://www.seattlespheres.com> (accessed January 2021).
- 472 **“Ideally,” Brand said:** Stewart Brand, “The Clock and Library Projects,” <https://longnow.org/about> (accessed January 2021).

- 472 **“Industrialization must be recognized”**: RBF, “Industrialization,” in *SD*, 8047.
- 473 **Mayor Rudolph Giuliani**: Allegra Hobbs, “Gentrification’s Empty Victory,” *New York Times*, June 1, 2018, MB1.
- 473 **geodesic cabin**: Luke Winkie, “What’s It Like to Own the Most-Visited Airbnb in the World,” Vox, last modified September 20, 2019, <https://www.vox.com/the-goods/2019/9/20/20857633/airbnb-most-visited-popular-mushroom-dome-cabin>.
- 473 **replacing doorknobs**: RBF, *EIK*, session 9.
- 474 **Andrew Yang**: While Yang’s platform was the closest to his ideas, the 2020 Democratic presidential candidate who expressed admiration for RBF most openly was Marianne Williamson, who called him “one of those world historic geniuses who reminded us of the extraordinary things that are possible” (Williamson, blurb for Sieden, *Fuller View*).
- 474 **“We should not be haunted”**: Adi Robertson, “Alexandria Ocasio-Cortez Says ‘We Should Be Excited About Automation,’” The Verge, last modified March 10, 2019, <https://www.theverge.com/2019/3/10/18258134/alexandria-ocasio-cortez-automation-sxsw-2019>.
- 475 **compared to “blood clots”**: RBF, *CP*, 217.
- 475 **“I feel that his lack”**: RBF, “United States: One of the Most Difficult Sovereignities to Break Up,” in *SD*, 19534.
- 475 **Critical Path Project**: Douglas Martin, “Kiyoshi Kuromiya, 57, Fighter for the Rights of AIDS Patients,” *New York Times*, May 28, 2000, 34.
- 475 **“Marx’s ideas changed history”**: William Kuhns, *The Post-Industrial Prophets: Interpretations of Technology* (New York: Weybright and Talley, 1971), 244.
- 476 **“I do want you to understand”**: RBF, “Man as a Function of Universe,” in *SD*, 9988.

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