Book Review

February 2015

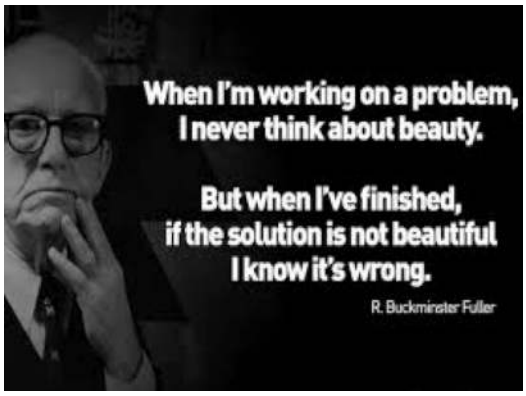
Operating Manual for Spaceship Earth

R. Buckminster Fuller, Southern Illinois University Press, 1969, 127 pages.
Pocket Book edition published November, 1970; 7th printing, October, 1974.

Operating Manual for Spaceship Earth is one of those wonderful books that were written decades ago but still provoke thought, present universal truths, forecast events decades in advance of their occurrence, read like a page-turner and ask why you don't read it every year… A MUST READ.

Selected Highlights

Dr. Fuller [1885 – 1983], gave us his ideas about our home planet at a time when holism, sustainability and even basic environmentalism were nascent. His ideas and insights, while published in the tumultuous nineteen sixties, produced a positive sense of optimism and projected prosperity for mankind. His optimism bestrode Rachel Carsen's presentation of *The Silent Spring* in 1961 and the violence and social unrest throughout the decade culminating with the chaos of the Chicago Democratic National Convention in 1968 while still amidst the Vietnam War.



R. Buckminster Fuller

Dr. Fuller wrote extensively after the publication of his *Manual.* Still the fundamentals he expressed in 1969 have held up for over four decades of seemingly-unforecastable technological change through society's embrace of the ubiquitous computer which he barely glimpsed, through two more decades of the Cold War and through the internet's explosive impact on instant and boundless communication.

Operating Manual for Spaceship Earth is a short book, a book of sophisticated thinking conveyed as casual conversation; a book that provokes thought, as he intended. His *Manual* is also one of those generational books that influenced lives and thoughtfulness in its time but fades as newer books and ideas surpassed it. [Although Amazon is still proud of this book if price is any indicator.] This he anticipated with his fundamental belief that "…the physical constituent of wealth - energy – cannot decrease and that the metaphysical constituent – know-how – can only increase." So, we continue to get wealthier as we become smarter, as new ideas continue to flow; many of which were his.

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He first discussed "comprehensive propensities". In a ten page opening chapter he worries that:

- **"Specialization precludes comprehensive thinking."** His example: Just because a floating piano makes a great raft in a flood, it doesn't mean you would design a raft to look like a piano. This is but one of his many examples about how episodic conclusions do not necessarily lead to systemically useful, sustainable solutions. The rare person who can think in concepts and details is a real asset.
- **Long range thinking is in short supply.** The impact of time and our impression with current events clouds our decision-making ability to come to the correct answer. He particularly observes that our timeframe for evaluating economic decisions is much too short. Most important assets last for years or decades. When we evaluate the benefit of a long term asset against the short-term need to pay for the asset, the conclusion is always that the investment is a bad deal. The benefits will not be realized over the short-term payment period, therefore the "do nothing" solution is always chosen. Investments in societal assets are generational, not to be judged against 5-year paybacks.
- **The "Great Pirates" of old were the only ones with a global view.** They were the ones who visited many ports and countries. They were the ones with the knowledge of what was happening elsewhere; their knowledge was all the port-bound people knew. Thus, the Great Pirates were powerful and wealthy. They stayed behind the curtain; they implemented their systems through local managers whom they called kings, ministers and emperors.
    - The Great Pirates prospered because they thwarted education and communication among their local managers. They were the only ones who knew everything. They kept their managers in silos.
    - Their power lasted until World War I when science improved global communication and transportation. Their competitive advantage was destroyed, as were they.
    - Once they were gone, they were not missed since few knew they ever existed. People thought the kings and ministers were the people who knew how to make the world work; but they weren't. Since the early part of the 20th century, no one has been in a position to run the world, independent of borders and local conditions. Nationalism and the nation-state became the operating system for the world.
    - The inherent contemporary conflict between global systems and national sovereignty is wonderfully described in ***The Globalization Paradox, Democracy and the Future of the World Economy***.
- **The computer will provide everyone with the information that was once the exclusive domain of the Great Pirates.** Dr. Fuller expected the computer to fill the void left by the absence of the Great Pirates. Well before digital media, social networks and mobile communication, he forecasted that computers would provide systems that would enable freedom for all people.

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- **Scarcity is a false idol.** Dr. Fuller also recognized that the prevailing operating theory of the world was based on the idea of scarcity. The assumption of scarcity was guiding decisions about distribution and encouraging one society to take resources from another in a zero-sum game. He opined that this was a false premise and that in fact, there was plenty of food, energy and other resources on the planet and that distribution of abundance was the problem, not scarcity. Jeffrey Sachs seconds this opinion in ***The End of Poverty: Economic Possibilities for Our Time***. His hope was that we would change from a system of hoarding based on scarcity to a system of sharing based on plenty.
- **Twenty-five years is a forecastable period.** Finally, after much consideration, he concluded "that it is possible to make a fairly reasonable forecast of about twenty five years." The life of capital equipment is about 25 years, financing of assets tracks this 25 year period, people's active careers span a generation of about 25 years. As futurists, we need to be comfortable with our time horizon. He contends, reasonably so, that in 1810 the Founders could not have predicted our world in 1960, they had no basis to imagine our technology or society. A generation into the future was a comfortable and reasonably reliable forecasting horizon.

However, remember that Jules Verne wrote about 1950 from his desk in 1880, *Paris in the Twentieth Century.* He did this by correctly anticipating the many current technologies that were just emerging; he had a glimpse of them in his lifetime; he extrapolated. Isaac Asimov also ventured out beyond a quarter century. So while predictions are tough, especially about the future – as they say – anticipating future events is critical and possible. For twenty-five years into the future, the seeds are likely already here, as are the people who will nurture and exploit them. For longer term venturing, the demands for thoughtfulness are severe, but the extrapolation of current possibilities offers a path to this anticipation.

So much for the first chapter of an eight chapter book; it's power-packed. Subsequent chapters explore the future of automation, general systems theory, synergy and integral functions with equal interest and provocation. Gliding quickly over the remaining pages with stops to appreciate pearls, we observe:

- All of the world's ideologies assume there is not enough to go around, as previously mentioned. With science telling us that there is enough for all, warfare is obsolete since the common premise of scarcity is now lacking. As Jeffrey Sachs demonstrates in *The End of Poverty*, the problem is now a commitment to distribution since we have ample production. Dr. Fuller figured this out long ago.
- "I would say that designed into this Spaceship Earth's total wealth was a big safety factor which allowed man to be very ignorant for a long time until he had amassed enough experiences from which to extract progressively the system of generalized principles governing the increases of energy managing advances over environment." His thought - we were given enough fossil fuel, fresh water and food to survive until we figured out how to create a sustainable lifestyle.

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- "We begin by eschewing the role of specialists who deal only in parts. Becoming deliberately expansive instead of contractive, we ask, 'How do we think in terms of wholes?' If it is true that the bigger thinking becomes the more lastingly effective, we must ask, 'How big can we think?'" "So I think it's appropriate that we assume the role of planners and begin to do the largest scale comprehensive thinking of which we are capable." "If we do not comprehend and realize our potential ability to support all life forever we are cosmically bankrupt."
- "Synergy is the only word in our language that means behavior of whole systems unpredicted by the separately observed behaviors of the system's separate parts, or any subassembly of the system's parts." By specializing in parts, we most-likely miss the whole.
- "The difference between mind and brain is that brain deals only with memorized, subjective and special-case experiences and objective experiments, while mind extracts and explores the generalized principles and integrates and interrelates their effective deployment." The computer will replace the brain; man's refuge and reason-for-being is the mind.

Dr. Fuller closes with an answer. "You may very appropriately want to ask me how we are going to solve the ever-acceleratingly dangerous impasse of world-opposed politicians and ideological dogma. I answer, it will be resolved by the computer." This is from the perspective of the state-of-the-art computing power in 1969 less potent than a first generation cell phone. Though a book of a previous generation, this man's thoughts and thought processes continue to be worth exploring.

A Copy of the text is available at:

http://designsciencelab.com/resources/OperatingManual_BF.pdf

YouTube:

http://www.youtube.com/watch?v=AVwCYKH8DqQ

Published Reviews

GOOGLE BOOKS

"It has been noted that Mr. Fuller spins ideas in clusters, and clusters of his ideas generate still other clusters. The concept "spaceship earth" is Mr. Fuller's, and though used by Barbara Ward as the title of a work of her own the idea was acknowledged by her there as deriving from Mr. Fuller. The brilliant syntheses of some fundamental Fuller principles given here makes this book a microcosm of the Fuller system."

http://books.google.com/books/about/Operating_Manual_for_Spaceship_Earth.html?id=Qy_7JAAACAAJ

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AMAZON

"In this essay on man Mr. Fuller expresses what may well be his penultimate view of the human condition. Here, in a mood at once philosophical and involved, Mr. Fuller traces man's intellectual evolution and weighs his capability for survival on this magnificent craft, this Spaceship Earth, this superbly designed sphere of almost negligible dimension in the great vastness of space."

"Mr. Fuller is optimistic that man will survive and, through research and development and increased industrialization, generate wealth so rapidly that he can do very great things. But, he notes, there must be an enormous educational task successfully accomplished right now to convert man's tendency toward oblivion into a realization of his potential, to a universe-exploring advantage from this Spaceship Earth."

http://www.amazon.com/Operating-Manual-Spaceship-Buckminster-Fuller/dp/089190235X

Related Readings

1. ***Paris in the Twentieth Century,*** Verne, Jules, Random House, (1863) 1996.
2. ***Silent Spring,*** Rachel Carson, Houghton Miffin, Boston, 1962.
3. ***Smart Machines, IBM's Watson and the Era of Cognitive Computing,*** John E. Kelly III and Steve Hamm, Columbia University Press, New York, 2013.
4. ***The Art of the Long View, Planning for the Future in an Uncertain World,*** *Peter* Schwartz, Currency Doubleday, 1991.
5. ***The End of Poverty: Economic Possibilities for Our Time,*** Jeffrey D. Sachs, Penguin Books, 2005.
6. ***The Globalization Paradox, Democracy and the Future of the World Economy,*** Dani Rodrik, W.W. Norton & Company, NY, 2011.
7. ***The Great Reset, How New Ways of Living and Working Drive Post-Crash Prosperity,*** Florida, Richard, HarperCollins Publishers, 2010.
8. ***The Idea Factory: Bell Labs and the Great Age of American Innovation*** [Paperback], Jon Gertner, The Penguin Press, NY, 2012.
9. ***The Third Wave, The Classic Study of the Future***, Alvin Toffler, A Bantam Book published in association with William Morrow & Co., Inc, New York, 1980.

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