

## Ecology, Technology, and **B**iosphere 2



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**I often wonder** about the mystery of how I found my way to the building of Biosphere 2 (a 3.15 acre miniature world under glass), and in becoming its co-Captain for the first two year inaugural mission. The mystery certainly lies in my experience at a young age with the psychedelic culture. An experience that taught me to see that there is no difference between ecology and technology.

I was sixteen when I had my first psychedelic experience--a teenager roaming the streets of Antwerp, Belgium. Then and there my life changed. The sky became me, and I realized that my home was greater than my family and country. I left Belgium shortly thereafter to travel to India, in pursuit of knowledge and to travel distant lands. That same journey--fueled with an aching desire to understand the biosphere, and the incredible capacity of the human being to become part of the biosphere--led me to the foothills of the Catalina Mountains in Arizona. There the beginning, just the dream of Biosphere 2, was unfolding.

I see the biosphere and modern life as a combination of--a beautiful synergy between--technology and life. The heightened state of awareness allowed me to perceive the conditioned mind at the same time as the complex web of life. It dissolved the separation between men and nature, and, in some cases, it exposed parts of the invisible world. Biosphere 2 became my experimental platform to learn about how ecology and technology work together, and to understand the role of human beings in this total system.

Eight of us were sealed inside Biosphere 2 from September 26, 1991 to September 26, 1993. During that time our task was to remain within the sealed structure and participate as co-creating, intelligent stewards of this emerging life system. We grew our own food, lived with a drastically different atmosphere, drank water that was condensed from

cooling systems, used ecology to process our wastes, managed a half acre farm with goats, chickens and pigs, supported a coral reef with mangrove marsh, a rainforest with cascading waterfall, and an acacia savannah and cactus desert with primates, lizards and frogs. We communicated with friends and family outside using telephones, as well as a primitive email system called dialcom. On comparatively rare occasions, we participated in meetings through the glass window.

My responsibility was to manage the maintenance of the technical systems. I could seek advice from outside experts, but trouble-shooted repairs on my own using a shop with tools and supplies in the Biosphere 2 basement. My day-to-day life centered around the well-being of the technics. Underneath the living systems (rainforest, savannah, desert, marsh, ocean and agriculture/farm systems), lay

a humming, noisy technical maze of pumps, controls, alarms, fans, rain systems, tanks and computers. This was my world and I was right at home.

My life had been all about acquiring practical hands-on technical skills. I learned from my grandfather about the craft of plumbing and electrical systems, and moved on from there to becoming a ship's engineer where at anytime repairs occurred far from shore and ingenuity was critical. During the construction of Biosphere 2, I was involved from the beginning, and joined the hundreds of workers to build the system--piece by piece. I could see the technological world of Biosphere 2--named the "technosphere"--in my mind's eye. I knew the boundaries of cement and steel, and could visualize the pipes and wires and machinery involved to simulate the workings of a natural environment.

I was a part of this man-made living eco-technic biosphere. By participating daily in its construction and living inside for two years, I had become part of its very fabric. It was the greatest learning experience of my life and by the end of the eight years (1986-1994), I could see in detail the "technosphere" inherent in the biosphere. Biosphere 2 had been my teacher--it had fulfilled my dream at sixteen to explore the reality of how the

biosphere worked. I was fully participating within a day-to-day practice of being at one with ecology and technology.

The Biosphere 2 technosphere was designed hand-in-hand with a myriad of ecosystems. Technology was there to benefit and support ecology--one could not exist without the other. This was the theory and *raison d'être* for the biosphere 2 project. It was called by the founders, the art and science of Ecotechnics. Aesthetics was required to simulate the natural processes of wind, rain, currents and waves. Science/engineering had to produce the necessary functions. Together, the aim was a seamless appearance of reality as we know it. All man-made parts and machines were integrally a part of all living, breathing, flowing movement and expression of life.

When I saw the coconut trees on the beach of Biosphere 2 waving gracefully in the breeze, I simultaneously saw the giant air handling systems that were powered to create these winds. When reveling in the lovely red and yellow flowering canna lily produced using the byproducts of human/animal waste in our wastewater recycling system, I also saw the roots of the plant acting like pumps to bring oxygen below the surface to break up these waste products. The plant's roots are designed

Mark Van Thillo inside Biosphere 2 looking out over Biosphere 2. He is in the library at the top of the tower. Photo by Peter Menzel. Permission by Mark Van Thillo





to act like a pump. Living systems are the best example for efficient and productive technological innovations.

As well, the future of our biosphere requires that we become more intelligent and encourage an expanding technological world that integrates with ecology and does not destroy the environment. By that I see a world where technology supports ecology, and creates systems that are economically and socially viable and sound. For example the most successful corporations will become those that have pioneered alternative Green energy systems, ecological wastewater treatment systems, ecological (not petrochemical fertilized) agriculture systems, computer information systems and satellites that photograph the Earth to provide real-time imagery for all people to become stewards of our Earth's biosphere.

When I look at what technology provides me in this present moment, it is always about providing life opportunities to do more. Yet most technology is accomplished at the expense of life even though we need soil, plants and clean water and air to thrive. The psychedelic revolution expresses over and over how we are all one. Indeed, our future requires that new businesses both create technological systems that work with the environment as well as use the wisdom of nature to create intelligent eco-friendly engineered systems.

“Dare to dream” and “dare to do.” This was a driving ideal at Biosphere 2 that kept us going to innovatively create a new world and not give up when things seemed impossible. I dare to dream that we can shift our mode of operating to create an intelligent future where the technosphere is part of the biosphere in an evolving, co-creating, life-affirming new world. The psychedelic revolution will help us dare to step into that future and see the extraordinary potential that is ours to create. •

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Photo of Biosphere 2 by C. Allan Morgan. Permission of John Allen.

