

Biosphere 2: Glass Ark/Green Machine

Biosphere 2 (1983, completed 1991) in Oracle, Arizona was a materially-closed, energetically-and-informationally-open research facility. This experimental, atmospherically-sealed greenhouse contained five mini-biomes: desert, ocean, rainforest, savannah, and marshlands plus a “human habitat” and 2,500 square meter farm. It was first managed by an eight person crew who lived sealed inside for two years from 1991-1993. Its operators described it as a closed-system research facility, operating in parallel to NASA, a prototype for lunar or Martian colonization. However, the project’s aspirations were far greater—to construct a working model of the planet as a metabolic system of human, animal, plant, machine, and building functioning as an integrated whole. It was not just a “machine-for-living-in,” but a “second Earth.” Biosphere 2 carried with it many (sometimes contradictory) ideas and inspirations, arriving as a very late entry in the architectural synthesis between cybernetic-ecological systems theory, and the counter-cultural interpretations of Cold War technological imaginaries. It was alternately framed as a commercial prototype, scientific facility, tourist attraction, and “temple to Gaia.” It may rightly be considered a 1960s cultural project dressed up as a 1980’s scientific endeavor and yet it eventually did produce useful science under Columbia University and the University of Arizona.

Biosphere 2 brought together permaculture activists, cybernetic acolytes, ecologists, entrepreneurs, climate scientists, management theorists, and free-wheeling fellow travelers and in its short life captured the imagination of the general public. Biosphere 2 represents a singular nexus of space colonization, ecological consciousness, the American counter-culture, and cybernetic and technological innovations. Biosphere 2 becomes both a conceptual filter for these longer historical narratives and symbolic monument of a techno-ecological moment of the Reagan-Bush Era. The utopian dreams of its founders drew from the same pool of desires and fears that motivate us today to think through the Anthropocene.