

PYGMIES IN THE BIOSPHERE
FROM ECHOES OF EDEN
BY ALICE EBY HALL

In the beginning, God created the Biosphere. Thousands of years later, man created Biosphere II in the Arizona desert. Both support human life. Hallcienda became involved with Biosphere II through its Pygmy goats.

A commercial endeavor, Biosphere II, consisting of three acres under glass domes, attempted to prove that eight humans could keep themselves alive by growing all they needed in the simulated biomes in the dome. Experiments were isolated from all assistance from the original Biosphere except energy, which entered through the glass.

Waterfalls cascade down concrete cliffs between giant trees of the rainforest biome. Water flows through swampy areas of the marshlands biome and the drier land of the savanna biome before it filters through the intensified farmland biome to support the fish, plants, and livestock.

The saltwater of the ocean biome gently laps the tiny shoreline beach with the help of rocking pumps to keep sea life viable. The desert biome, essential for oxygen creation, lacks visible water but rounds out the biomes of Biosphere II.

Because Biosphere II has limited space, it is not capable of supporting large animals, even standard-sized goats. One large goat was not an option because of productive down-time she would require each year before kidding again. Research indicated that even a little milk was necessary to balance the diets of the researchers who would be staying in the Biosphere.

A representative, Safari (all Biosphere staff members used nicknames), contacted me in 1988 asking about the feasibility of using the tiny Pygmy goats in Biosphere II. I assured her I thought they would do well. An average Pygmy gives roughly a pound or a pint a day of milk. Some give twice that, and a few even produce twice the larger amount.

The whole concept excited me, and I willingly sold three Pygmy does to the Biosphere II project. "What do you think about your goats maybe going into space?" Safari asked. "Great!" I replied. "Can I go, too?"

Safari and a professional movie photographer came to pick up the does in 1989. The job of the photographer was to record the event for their documentary, and that was easier said than done. The goats were in the dry upper pasture eating fescue, filaree, and luscious little purple and yellow ground-cover blooms when their purchasers arrived. The Biosphere crew wanted footage of them running

home as they did when they saw us coming.

I had to lead the goats out to pasture and back four times before the photographer had enough usable footage. Whenever the goats saw the tripod, they rushed to it, sniffed around it, and then crawled under it to peer up at the camera. The cameraman found it impossible to photograph curious animals under his camera. Safari and I laughed uproariously at first, but by the third time, tempers wore thin.

The three does, Curly (because her ears curled at the tips), Aref (R.F. for runny face because of the long white stripe down her nose), and Vision (because this vision of dwarfy loveliness participated in a vision for the future) made a comfortable trip to Arizona and settled into their new lives.

A year later, Biosphere II wanted two more Pygmy does, but no one had time to pick them up and flights were too expensive. I offered to take the two does to Arizona for mileage, and it was an exciting trip. I took fifth-grader Stephen with me in Roger's new Geo Metro. The two little goats fit behind the rear seat. I drove all night with the assistance of several cans of Pepsi to jolt open my droopy eyelids, and Stephen slept.

Safari met us at the gate so we could pass the guard. The fresh-air domes and the energy facility were fascinating. We enjoyed the goat facility and the research dome where they discovered that under certain conditions too many plants produce too little oxygen.

The insectarium crawled with insects, and the arboretum, where the new goats would live with mini sheep and pot-bellied pigs was humid and jungle-green. The arboretum, arranged much like Biosphere II, was open to the public for a feel of what the Biosphere experience would be like. We said hello to Curly, Aref, and Vision, and they seemed to be doing relatively well. They had all produced kids and milk. Vision seemed to have lost size, but elephant grass is probably not the most nutritious diet for a milking animal.

Safari led us to the Biosphere and let us peek into its ocean depths through the viewing window. Then she guided us to the back, opened the airlock doors, and ushered us into the Biosphere itself.

It was only days away from its first closure experiment, the residential biome being not quite complete, and very few people not directly involved with the project were allowed inside. Entering Biosphere II was a more memorable experience than my first flight.

The airlocks admitted us to the basement of the structure, and the number and size of pipes zig-zagging the ceiling was incredible. Safari explained that because Biosphere II accommodates only 20% water and God's Biosphere contains over 70% water, man's Biosphere needed pipes to help it maintain. The disappointment I felt in knowing that the project did not quite measure up to everyone's

expectations was overshadowed by the technological magnificence of the entire endeavor.

We avoided the workmen in the residential biome but meandered through the mini-farm where our animals would be kept in small wooden and concrete pens. I was disappointed that my goats would have to be so artificially confined, but on the other hand, an animal that eats 70% more varieties of vegetation than any other animal would not be welcome browsing through the farm and other biomes unchecked.

The fish ponds along the pathways helped recycle and purify water for use in the residential facility as well as furnishing high-protein meat for the researchers. Thick vegetation flourished in close proximity in the agricultural biome, and some varieties already produced. Researchers wanted to experiment with flora not generally found on a standard farm, like coffee plants, because the rule was, they had to produce everything they used. Roger would have loved it!

From the farm we climbed to the rainforest. Safari commented that she saw several insects that did not belong, were freeloading, and they would have to be eliminated before closure. She was in charge of the insectarium and decided which beneficial insects would be included. She also mentioned that the concrete cliffs down which waterfalls cascaded would house bats to help keep insects in check.

A stroll through the savanna and marshlands took us to a rise overlooking the desert. We decided not to tour the desert since we'd experienced so much of its unrelenting heat and chapping dryness outside. We turned and walked a path along the beach instead.

Stephen hopped a low wall so he could make footprints in Biosphere's untarnished sand and dabble his fingers in the gently surging water on the shore. Safari told us about the baby octopus that was not discovered in the water from the Gulf of Mexico in Biosphere II's ocean until it grew quite large. By then, the fish population had declined dangerously, so the octopus was caught, and staff members found him delicious.

The structure of the domes was fascinating, too. The entire three acres is under huge glass panes. The understructure is steel triangles. From inside we watched tourists gazing through the plates, and we wondered if they could see us or if we blended into the background enough to be camouflaged.

The time came for us to leave, and we thanked Safari profusely for allowing us to walk through and glimpse the future. We followed the first closure of Biosphere through the media because our animals were there. It was fraught with problems and frustrations, but because the concept is so unique and exciting, experiments continued.

Nigerian Dwarves may have replaced the Pygmies, and different breeds of mini sheep and swine have also been tried. Someday, the right combination will be found, and man may, as science fiction

writers have predicted for years, find a way to survive on an alien planet, thanks partly to Hallcienda Pygmy goats.

The first closure was not deemed particularly successful, and the second closure with a different crew was not even completed. Political turmoil ended the quasi-scientific endeavor, and the facility was sold to Cornell University for a research facility. When Cornell threatened to sell it to a land developer, University of Arizona stepped in to retain it as a research facility.

Hallcienda Pygmies didn't end up on another planet or the moon or even on a space station, but the research in which they were involved has opened doors to understanding God's beautiful Biosphere.