A touch of Puerto Rico in Biosphere 2

Hints of the Puerto Rican rain forest thrive in Oracle, Arizona, where some species are encapsulated along with the microcosms of an ocean, a marsh, a desert and a savannah in Biosphere 2.

It's not just the plant life of Puerto Rico that has roots here; some of the people involved in the approximately three-acre enclosure have spent a good chunk of time here on the island, either at Las Casas de La Selva, a 1,000 acre forest reserve just north of Patillas, or docked in San Juan harbor aboard the Heraclitus, a research vessel that was in port once again in early July.

Harry W. Scott shipped thousands of plants representing about 100 species

MELANIE LENART
Eco-Logic

from Puerto Rico to establish themselves in the rain forest portion of Biosphere 2, which has been designed technologically to serve as an enclosed ecosystem that can support eight humans.

Scott, who has generally split his time between tending the Arizona project and serving as a land manager on the Puerto Rican reserve, also selected some of the insect life for the system, which has the dual research role of pursuing eventual space cultivation and immediate Earth appreciation.

Additional Caribbean influence can be found in Biosphere 2's version of the ocean, which includes a coral reef system modeled after the ones in this region. "A coral reef is like the rain forest of the sea," suggested Christine Handte, captain of the Heraclitus and one of the researchers who collected the ocean dwelling species.

Handte provided a tour of the ship while it was docked here earlier this month after a journey from Belize, where the loosely organized parent company of many of these ventures, the Institute of Ecotechnics, has established another base of operations to a growing list that includes London, France and Australia as well as Puerto Rico.

The ship had the misfortune of being anchored in Puerto Rico during Hurricane Hugo in September of 1989, where it went down toward the end of the storm. But it appears to have bounced back admirably from its brush with the bottom, with the help of some huge

Please see BIOSPHERE, Page 32

...from Page 31

Biosphere

nflatable bags that floated it to he top.

Handte, who grew up on her father's fishing boat in her native Germany, sees the cooperation required among crew members as a good training ground for those who would like to become "Biosphereans," or just more cooperative. All crew members take turns at cooking, cleaning and even steering the ship..

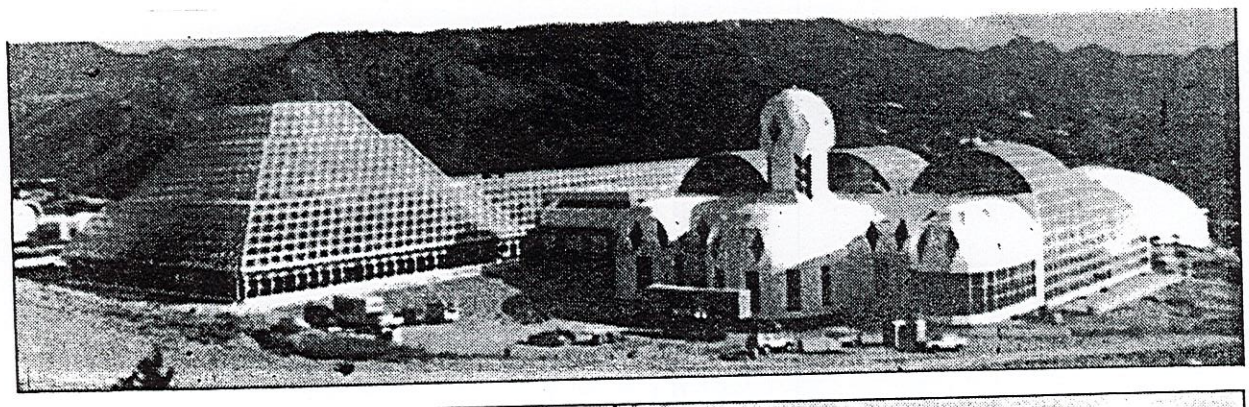
"It's good experience to live in close quarters under extreme conditions," she said.

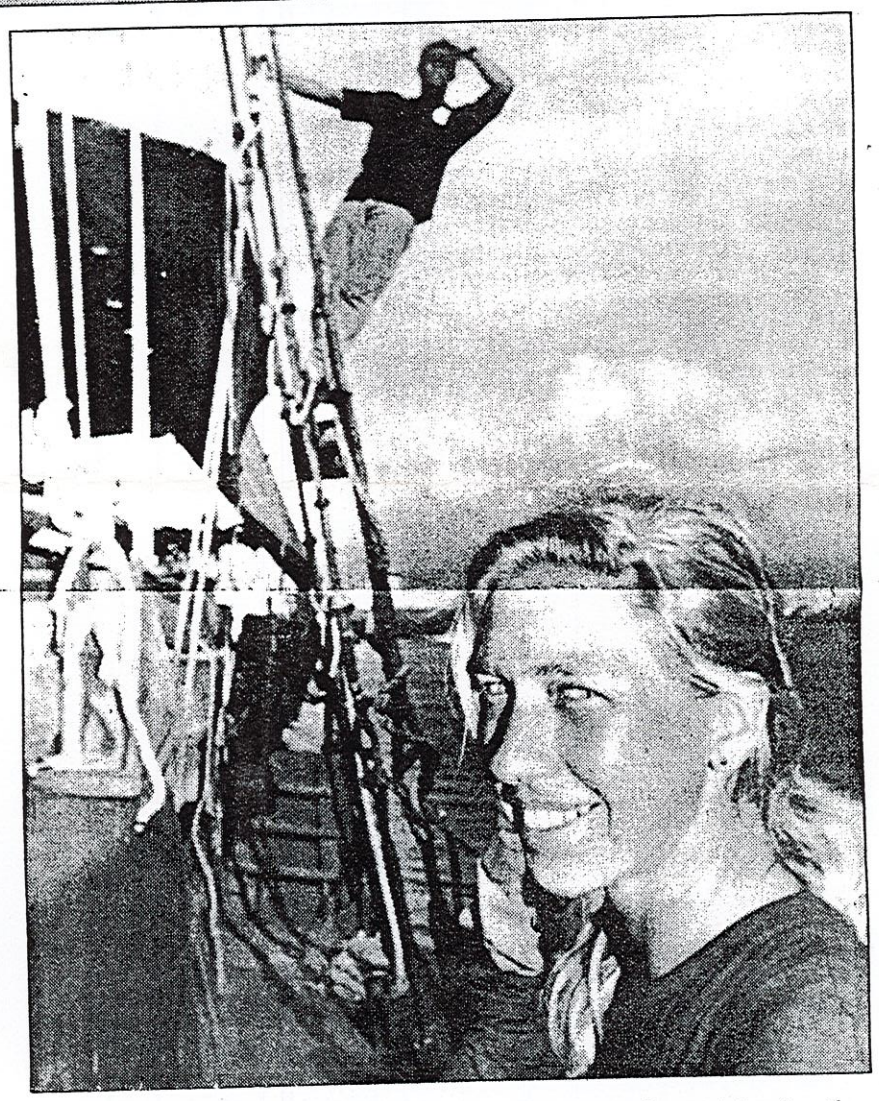
John "Rubio" Druitt is one islander who hopes his three years aboard the Heraclitus will help qualify him for spending a year in Biosphere 2. Druitt, who currently lives on the Las Casas de la Selva plot working wood and planting trees, hopes to begin life in the bubble in October, after the initial eight-member crew of Biosphereans finishes its two-year stint in September.

Over the course of the two years since the initial closure, the project has taken a bit of a beating from some scientists. Charges that surfaced in January included: an injured crew member brought back supplies upon her return to life under the glass; the monitoring conditions inside the dome were designed to permit tampering with the data; and the crew did not immediately report it when they added oxygen to the supposedly closed system, among other things.

A panel of outside experts who were brought in to help restore the flagging credibility of Biosphere 2 ended up disbanding in February, with the project's sponsor, Texas billionaire Edward P. Bass, and some panel members blaming personality conflicts for the problems.

Perhaps a differing philosophical view fuels the controversy. The $150 million project is intended by Bass to create profit *a la* Jurassic Park — by charging visitation fees, selling souvenirs (such as "Biosphere 2 plant clones") and patenting technology. The search for profit may be clouding the search for knowledge.





Biosphere 2, above, a self-contained collection of several ecosystems in the Arizona desert, contains samples of Puerto Rican life forms. Biosphere 2 is connected to other groups connected to Puerto Rico, including those operating the Heraclitus, at right. Captain Christine Handte helped collect the ocean-dwelling species for the project.

STAR file photos

On the other hand, this approach is little different from the smaller ventures the group pursues, even on the island.

Those running Las Casas de la Selva, for instance, have recently turned to eco-tourism to raise money to help support themselves. And the Heraclitus takes on working passengers for $300 a month; a mid-October trip from Venezuela to Belize, for example, has spots available for about $150. (Landlubbers or seafarers can call 721-3148 for more information on either venture.)

The people working locally on these projects whom I've met in the past couple of years work hard, lead simple lives and seem open and honest. Because of this, I would be inclined to suspect that their counterparts in Biosphere 2 have similar ethics. They certainly work hard — they are expected to toil in the garden about six hours every day to raise their food on top of other chores and data collecting.

Perhaps the controversy over the project stems in part from its departure from conventional science.

Practitioners of Western style science lean heavily toward having a "control" to compare to Biosphere 2 is hardly comparable to the only control available — Biosphere 1, the Earth.

Also, scientific philosophy leaves little room for deviation from guidelines set in advance; most scientists would tend to set up the parameters and then measure the rise or fall of the ecosystem.

In contrast, researchers working on the Biosphere 2 project, few of whom hold advanced degrees in science, seem to be pursuing a vision more than an experiment. Their work is conducted with the eventual cultivation of space in mind, and their efforts are directed at keeping the system viable, even if it means adapting the guidelines as they go along.

That's not to say their approach is invalid just because it's not as rigidly oriented to scientific method as some critics would like. If they prefer to add a shot of oxygen to replace the leaked-out 10 percent, it's probably because their investment doesn't grow if their ecosystem fails, however interesting the results may appear to purists.

However, if they fail to report that they added the oxygen, because they fear stock will fall in Biosphere 2's attractiveness to tourists, then they risk destroying the scientific value of the project entirely.

So I was relieved to see that a 12-page paper by some Biosphereans and other researchers in the April 1993 issue of the journal BioScience did indeed discuss the addition of oxygen, and the presence of a scrubber to help clear out some excess carbon dioxide build-up.

Perhaps the perceived withholding of information was actually a guarding of information, intended for later release in a researcher paper. Scientists sometimes use this approach to improve their chances of getting published.

Only time will tell if the project will make the grade scientifically. But in the meantime, it certainly rates high for having guts. For now, I'd give it an A for adventure . . . and hope that it doesn't come to represent avarice in the future.