

INSTITUTE OF CURRENT WORLD AFFAIRS

DRP-9

247 C Bicknell Ave.
Santa Monica, Ca 90405
October 10, 1986

Yeti Enterprises

Peter Martin
INSTITUTE OF CURRENT WORLD AFFAIRS
4 West Wheelock Street
Hanover, NH. 03755

Dear Peter,

My trip to the West Coast began auspiciously in New York City where, at the editorial offices of Simon and Schuster, I received two copies of my book, Life Above The Jungle Floor. After a decade of work I felt indescribable pleasure and satisfaction at seeing the project completed.

The main reason I came to Los Angeles was to help John Williams, my engineering consultant, construct the Automated Web for Canopy Exploration (AWCE.) The project has arrived at a slow period because to save costs it has been merged with a battery of projects he is designing for Rogo and Bernstein, a company that specializes in the construction of museum exhibits.

At John's office, on 3rd Street near the Farmers Market, it became obvious why the AWCE project has slowed down. John is the main designer of about sixty-four exhibits for a museum in Dallas and each project is of similar complexity as AWCE. He showed me stacks of blueprints that he had finished and their volume was truly mind boggling. These will demonstrate a variety of physical phenomena that often go unobserved. Some of the subjects are the refraction, reflection, interference, and polarization of microwaves, laser light, and water waves. There will be demonstrations of celestial and classical mechanics, magnetic jumping rings, mathematics and fractals, surface tension and cell walls, and literally tons of other stuff since most will be large constructions made of steel. For example, one exhibit will be a 21 foot-long lever for demonstrating mechanical advantage -- a child will be able to lift a 1,000 pound steel sphere.

Once AWCE's blueprints are drawn, a process that is already in progress, they will be included in a portion of the other

Donald Perry is an Institute Fellow who is developing a new system of access for conducting research in the tops of jungle trees.

projects and given to a manufacturer. In the meantime we are searching for an appropriate hydraulic-motor/gear-box combination to wind stainless steel cable, of which there will be about 4,400 feet. Four units will be needed to operate the system.

Previously I had mentioned that power would come from small gas or diesel electricity generators. Now we will use gas engines to pump hydraulic fluid directly. Assembly of the drive system can begin in about a week. However, completion and testing of AWCE will not be possible until December.

John Williams has assisted me with the development of my canopy research methods from their beginning, so I thought the Institute would be interested in learning more about him.

John is a native Angelino and was born here in 1943. He has a flair for daring that began to show itself in junior high school when his hobbies included making explosives and solid fuel rockets. At the age of fourteen he had earned a pilot's license for gliders and at age sixteen he received another license for powered aircraft. After graduating from high school in 1961 John began electrical engineering studies at the University of California at Los Angeles. He spent summers hitchhiking through the southern states where he had a variety of adventures, including participating in the Freedom Marches, which were protesting the segregation of public facilities in the South.

On one of these trips he hooked up with a small carnival that was carted from town to town on twelve trucks. His job included setting up, dismantling, and operating rides.

Several events underscored the danger associated with hitchhiking in the South during the early sixties. One time John entered a bar alone and sat down for food. He was slugged in the temple and knocked unconscious by a person he never saw. The first thing John remembered as he awakened was the ceiling of the bar. No one offered assistance and all pretended that he was not there.

The most chilling incident happened in 1964 when John was looking for a place to camp off a road in Louisiana, between Treeport and New Orleans. It was late afternoon, near sunset, when he saw a car rolling slowly down the highway. A large pistol appeared in the window and someone started shooting. John luckily was able to scramble to safety behind a tree, which absorbed several slugs. Since all the violent incidences were unrelated, John believes that "roughing up" strangers was done for entertainment.

John started Yeti Enterprises in 1968 and is its sole owner, manager, and "exploited" worker. Yeti Enterprises has attracted a variety of engineering projects. An early one was making circular, laminated, wooden "quarters" for a decorative logo on stereo speakers. The contracts called for the fabrication of 40,000, which necessitated building automated machinery.

Yeti's next major project was designing robots for the Singapore Science Center in 1978. At that time there were no suitable microcomputers that would control the robots' activities. He single-handedly designed and made a computer along with the operating machine language. The project was quite successful, but so difficult that John remembers it as one of the most mentally torturous experiences of his life.

After the film Star Wars created vast markets for toys, John was asked to design and build a prototype electronic watch that would be sold under the film's name. While the project never panned out, the watch he built has features that to this day are not found on any other timepiece. The watch can be submerged to a thousand feet without leaking and it has no moving parts.

John's participation in AWCE has roots that go back to when I was a graduate student of biology at California State University at Northridge (1972-1976). I had known John for a few years when in the fall of 1973 we went on a hang-gliding adventure that would help lead me to canopy biology.

The day was crisp and cool from being washed by northern Chinook winds. The blue sky was full of puffy white clouds that scurried across the San Fernando Valley, rose rapidly up our hang-gliding ridge in the Santa Monica mountains, and then slipped down, across the Malibu beaches heading for the Palos Verdes Peninsula and the open southern sea.

On the ride to the Topanga Canyon fire lookout tower, our take-off point, wind whistled through the bare rocks in gusts that seemed capable of uprooting plants. I decided not to fly. John, however, was not deterred, perhaps because he had hand built the hang glider and had faith in its strength.

We assembled the glider on the concrete footing of the tower unable to hear each other above the roar of the wind. Far below, amid the twisted, wooden spikes of manzanita and granite boulders was a landing "strip" that appeared little larger than a postage stamp. Even on a calm day the grass field was not an easy target but in that storm it would prove to be an unattainable goal. We did not know this until seconds after John was in the air.

Rather than sinking into the valley, the glider began rising above the ridge. I could see John struggling fruitlessly to force the nose down as he rose ten, twenty, and then thirty feet above the ridge. The glider was lifted higher and higher and for a moment I thought he, like the clouds, would be carried out to sea.

John turned the craft to go with the current and suddenly found himself slipping over the brink of a "waterfall in the sky" -- smooth flowing air that rises up one side of a slope and breaks into turbulent eddies as it cascades into the adjacent valley. When the glider reached this point it looked like a potato chip let loose in the wind. It became a white fleck descending into the wrong valley where there was no safe place to land.

He did however find safe "ground" by landing in the top of a clump of thirty-foot tall trees. Retrieving the glider from the grip of those high branches took many hours of scrambling along weak limbs. It was then that I became fascinated with treetops. They elicited in me a feeling of being an arboreal ape. After learning that tropical treetops were unexplored, the above experience helped me decide to study the canopy.

John gave me my first climbing lessons -- a two hour crash course in rope climbing -- and loaned me his mountaineering equipment.

Knowing how to climb a rope was only half the problem of devising a way to climb tall jungle trees. Since these trees

lacked limbs near the ground some method was needed to get the rope into the treetop. This I thought possible by shooting a fishing line over a high limb with a crossbow and arrow. The line would lift a strong cord that in turn could be used to lift the heavy mountaineering rope. In the summer of 1974 I traveled to Costa Rica and successfully climbed my first tree using this system.

In 1978, I became dissatisfied with my tree-climbing method. A large number of forest trees were too weak to support human weight and yet they were the feeding sites of a large number of forest animals. Another method was needed if these trees and the associated flora and fauna were to become scientific research subjects. That was when I imagined that it would be possible to use tall emergent trees as support towers for a new system of access.

I discussed this possibility with John in the winter of 1979. He helped design a rope web that has since appeared on the covers of SCIENTIFIC AMERICAN (November, 1984) and SMITHSONIAN (June, 1980) magazines. It was this rope web that was the prototype for AWCE.

AWCE will be a 1,000 foot-long cable system that is suspended above, and more or less in line with, a tropical river canyon. The system will lift two people at a time to heights of three hundred feet above the ground, carry them out over riparian forest, then lower them into any point of the underlying arboreal domain.

In November or December, I will return to Los Angeles to test the chairlift. This will be done in Topanga Canyon and should take no more than one week. The equipment will be crated and shipped to Costa Rica in time to be used during the three month dry season that begins in January.

Sincerely,

A handwritten signature in cursive script, appearing to read "Don". The signature is written in dark ink and is positioned below the "Sincerely," text.

Received in Hanover 10/23/86