

The Chemistry of Golden Silk



7/21/99

Think of the word *objectivity*, grasping reality by the handle of an object, like choosing a word. Because the human species is an imaginative animal, we desperately need objectivity to survive, to "get a hold on" ourselves, as we say. All forms of physical activity (work, sports, and chores) are handiwork and governed by and further support our marvelous mind-body coordinations.

For years I have been contemplating the right time to "retire" from playing basketball and wondering which part of my body would send the message of pain to quit. Pain I have had aplenty, but it has always receded so that now, as I near sixty, after more than fifty years of twice-a-week hoops, it occurs to me that it may be my mind which gives out first and makes me hang up the sneakers because the time it takes a message to get from mind to muscle is becoming embarrassing.

No one can look at the human body for long without recognizing that objectivity is not enough to comprehend it--everything in an organism is connected to everything else through multiple systems. So, the next dimension above the human as object is the habitat or the ecosystem. The body interacts with the environment like the individual in a family, so that we desperately need to go beyond objectivity to what, "systemicity"? Systematic thinking: the harder you pull on an object, the stronger the sense of system you will get.

The systemic dimension is something in solution that can be mixed in a vat or gland, spun out like rubber or pushed out like perspiration and carbon dioxide. My image for this higher level of complexity is the noiseless patient silk. In the case of the golden silk spider, building webs across many of our Wekiva trails, that means geochemistry.

8/2/99

We park in the north lot off route 44 near Cassia. My son Sean and I are making our way along the Florida Trail heading south in the Seminole Forest, just above the open meadow for primitive camping along Pine Road, really just an abandoned jeep trail. Each major opening with trees or high bushes on the side of the path is marked by a golden gate. Typically the golden silk spider is one and a half to two and a half inches long with alternating patches of brown and yellow on her legs. The distinctive feature is an abdomen that is long and more rectangular than cylindrical. The surface of her thorax looks like a finely embroidered jewelry case with gold beading fit for an Anglo-Saxon queen.

When you walk along the trail, the web and the spider are nearly invisible so that we constantly stop short and let out an "Oh, no!" when the face comes up quickly upon the web. Instinctively we want to avoid the spider's gummy thread (and its bite, if it comes to that), but not to worry. Objectivity should tell you that this web is not made for humans, nor is its stinger deadly to so large a creature. Usually the female is above us because the web is strung from above, sometimes as much as ten to twenty feet tall and as wide as it takes to be tied across the path from tree to tree or shrub.

I'm not sure why, but when we bushwack off the trail, we don't seem to find so many golden silks, but here as we descend on the path into the bottomlands, they occur about every ten or twenty yards. Do they fight for the best locations for their golden gates? Do they get more food because every animal who uses the path carries an entourage of insects in the caravan?

When you find one of these webs, try moving around in the light until you can see the color of the web itself, fully golden at the right solar angle. If you clap your hands, the spider will retreat a little. To navigate past one of these webs, find the lowest scaffold line and duck under. The web seems designed to avoid whatever walks or flies lower than three or four feet. Sometimes, however, the best ploy is to move around the tree or bush that anchors the spider's world to the earth.

The secret of the spider's incredible construction is evolution and chemistry. She has protein factories in her five glands, each strumming out different kinds of silk through spinnerets and all this is integrated with a highly developed neurophysiology. Reacting to the slightest

tickling of the web, she moves a thousand parts of her intricate body, all in consort, through the chemistry of attack behaviors with toxins to stun the prey and gold ribbons to wrap it up for lunch.

Passing under and around these fine works of animal artifice, Sean and I finally come on our return path to a place where the trail ascends a fairly steep slope, but ahead to the right is a deer-path or some other animal's by-way; so we abandon the trail markers to explore. Soon we come to a small rill and a three-foot wooden bridge. Following the water flow back up stream about forty feet, we locate the tiny spring at the base of a cliff (laugh, all you mountaineers) about twenty feet high and not quite vertical. This is Florida and a sheer drop is still a cliff, however shallow.

The hole is slightly bigger than a gopher's den-mouth and the water spreads forth in a two-foot wide streamlet that is perfectly clear and two inches deep. The water seems potable, and not much of any sulphur is emerging. The rill fumbles here over limestone pebbles that glisten in a thousand gold and white, earth brown and grey nodules. Is this the central drinking place for the four-leggeds of the forest and does that explain the chain of golden webs down the path from the uplands--catching the deer flies and mosquitoes that worry us mammals on the way to water?

For Sean and I, this is a Ponce de Leon experience. The map shows Sulphur Run initiating in the swamp on the other side of the forest ridge and curving like a three-mile question mark dotted at the juncture with Blackwater Creek, just below the bridge on Pine Road. We scramble back and forth in extreme delight because of the magic of the karst aquifer which can poke out anywhere under its fat-gutted belly and start another finger of the Wekiva River system. We know we are not the first to find this place, but that doesn't matter. The heat of a 90° July day is very much relieved in this shady emanation of the river.

Now here is the key, the knot of this discovery, the system inside which this hike and this fountain of youth operates. This summer, while I was at Cornell doing research on John Nolen, the archdruid of urban planning in the eastern half of our country, I got one of those phone calls a parent dreads, that a crisis had arisen in my son Sean's family. Many phone calls later and upon my return, Sean and I got this chance to hike and to talk. At thirty-three he is beyond my parental direction, a parent himself. Without going into details, I think Sean would agree that he was in the worst pickle of his life, completely obsessed as we all get when suddenly a very complicated catastrophe erupts.

The problem for magnanimals like us is that with all our imagination and knowledge, we still have times when we cannot get a grasp of objectivity and the balance inherent in the whole system. No technologies of telescope or microscope can ever quite create the whole view. Reality is like the Wekiva itself. Her little tendril streams and delicate spider webs all flow together in a superb system of geochemical interdependence too grand for any one or any species, either toprehend or to comprehend.

Our celebration at the discovery of this spring was a release from the cage of Sean's problems. It did not erase the problem or even ignore it, but rather found a larger system into which it fit more comfortably. It reminded me of Whitman's fine poem about how nature flows unconsciously through our every heartbeat.

There Was a Child Went Forth

*There was a child went forth every day,
And the first object he look'd upon, that object he became,
And that object became part of him for the day or a certain part of the day,
Or for many years or stretching cycles of years.*

*The early lilacs became part of this child,
And grass and white and red morning-glories, and white and red clover, and the song of
the phoebe bird,
And the Third-month lambs and the sow's pink-faint litter, and the mare's foal and the
cow's calf,
And the noisy brood of the barnyard or by the mire of the pond-side,
And the fish suspending themselves so curiously below there, and the beautiful curious
liquid,
And the water-plants with their graceful flat heads, all became part of him....*

If Wekiva restores us, why shouldn't we work to restore it?