

► **DirecTalk** MUSINGS FROM THE 10TH FLOOR

David Dyjack, DrPH, CIH

Darwin's Paradox Reinterpreted

*We are a
professional ocean
in a drop.*

Palau occupies a special place in my heart. The tiny island nation (it is actually a nation comprised of 340 islands) lies in the western Pacific. It is at once a sovereign country and aligned with the U.S. through a Compact of Free Association. My relationship with the environmental health program there began in 2003 as I provided a 2-day training program in the conference room of the modest Penthouse Hotel in Koror, Palau's largest city and capital until 2006.

There are many memorable experiences to be had in the western Pacific. Local grocery stores carry Spam sushi, you can order a dinner of fruit bat, and you can enjoy some of the best whole fried fish on the globe, including right there at the Penthouse Hotel. I sampled a hearty chew of betel nut, but alas, did not experience the gentle stimulation for which it is famous.

Palau is world famous for its scuba diving, which holds special appeal to me. I spent one afternoon diving in the famous Blue Corner, an underwater feast for the eyes about 60 ft below the surface where dense, rich, and cold Pacific water upwells over a coral plateau. The cold, nutrient rich water from below blends with sterile, yet clear water of the shallows, which attracts plankton that in turn attract small fish and in the spirit of the food chain, attract pelagic predators. A string of superlatives fails to capture the breathtaking scene. A bigeye tuna—almost 7-ft long—roared out of the depths, took one close-up look at me, and then vaporized into the great abyss. I was mesmerized by disco clams, sea snakes, barracuda, black and white tip

sharks, and a school of hammerheads. As the air level in my tank plummeted to 500 psi, my signal to return to the boat, I ascended to the surface and enroute encountered a battalion of spotted eagle rays. Pure bliss.

The rich, beautiful coral reefs of Palau are adjacent to expansive biological deserts of open ocean. How is it that the richest ecosystems on the planet are surrounded by the poorest? Naturalist Charles Darwin struggled with this observation during his epic 19th century voyages on the HMS Beagle. This conundrum is referred to as Darwin's Paradox. The solution lies in the intricate and symbiotic relationship between coral polyps and dinoflagellate algae. The coral polyps provide protection through their calcium carbonate exoskeleton and the algae provide nutrients through photosynthesis—a fecund marriage of epic proportions, one in which the partnership transforms a biological desert into an oasis.

The concept of adjacency, where rich and poor mingle, intellectually appeals to me. These conditions forge new relationships out of necessity and give rise to something bigger than themselves. I observe cities, large and small, to be hotbeds of innovation:

brownfields reoccupancy, living walls, and white asphalt that reflects solar energy back into space, among other fascinating developments. A place where people, rich or poor and of various races, ethnicities, and religious beliefs, collide. Urban Blue Corners abound.

I see our profession as Blue Corners personified. Rumi, a 13th century Persian poet and Islamic scholar, suggested people are not a drop in the ocean but rather an ocean in a drop. We are a professional ocean in a drop. Our eclectic work is comprised of social, quantitative, and natural sciences. That's why it holds such appeal to us and offers such a fascinating career. That is, we possess knowledge, skills, and experiences that uniquely make our diverse professional lives fertile ground for new ideas in the public health enterprise. At the same time, we are directly adjacent to sterile, echo chambers of modern society's social and political discourse. I believe our intellectual coral reefs should be the ecological anchor for the health professions. Put another way, environmental health is a keystone profession that has a disproportionate impact on the environment around us.

The way forward means we will need to be more assertive in applying our observational skills to see and share solutions that involve the intersection of the public and private sectors. Small wins matter. You don't need to plan it, move into action as action attracts more action. The universe is blanketed in the notion that we need heroes. We don't need heroes. Our profession would benefit from

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each of us doing something small that draws positive attention to our contributions to the health, safety, and economic security of society. This endeavor will require sustained effort over many years. I am confident that this accomplishment is entirely within our grasp. We will need to be unpretentious, collaborative, and altruistic. What does a small thing look like?

It was almost 12:15 p.m. on September 22 as I drove up the New Jersey Turnpike enroute to the Yankee Conference in Connecticut. I exited at the James Cooper Travel Plaza so I could take a call with Dr. Gary Brown. As I secured a spot in the far reaches of the parking lot, a place where I could speak without the hum of the adjacent freeway, I noticed something bizarre. An insect with brilliant red wings flew by my windshield. It was unnatural. I've lived throughout the U.S. and have never seen anything like it. After Dr. Brown and I finished our call, I went to explore.

Imagine the sight of some old guy rummaging through the shrubberies at a New



Spotted lanternfly. Photo courtesy David Dyjack.

Jersey travel plaza, but hey, there I was. I located what I thought was the insect, camera in hand, and tried to capture a photo but the little beast was elusive. As I brushed the leaves and other dead foliage off my clothing, I touched something on my shoulder. It was the insect. I knocked it to the ground and took a photo with my phone camera.

The moth-like creature turned out to be a spotted lanternfly. A new invasive species from southeast Asia that limits photosynthesis in target plants. It has the potential to destroy economically important crops and its distribution is increasingly rapidly. I reported the insect to the New Jersey Department of Agriculture, shared the news with my friends at the conference, and contributed to our knowledge of the distribution of this emerging pest. This story is an example of the intersection of entomology, economics, and social science. Seen in isolation, this story is meaningless. On the other hand, everyone reading this column is now aware of a new threat.

Each of us holds the potential to improve the lives of those around us through a myriad of tiny acts. Yes, the sterile and scorched-earth social environment around us can make those small acts seem meaningless. Together, let's build something beautiful. 🐛

Dave

ddyjack@neha.org
Twitter: @DTDyjack

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