

Biophilia Steven Khan

July 1994; the long vacation between Lower and Upper Six. I sat alone on the hard stool in the old biology laboratory squinting through the eyepiece of the light microscope. It was quiet. I needed to improve my biological drawing skills. I had some green, gooey scrapings from the drain outside on my glass slide. I had always wondered what the “crap” in the drain looked like up close. As I adjusted the focus, the wonderful filamentous form of a tangle of the common alga *Spirogyra* and its ribbon-like chloroplasts leapt into view. Other beasties, probably some *Euglena*, moved about rapidly. In a clump of dirt, though, something stirred. Adding a drop of water and gently agitating, I managed to dislodge a little colourless worm. Cool. For at least half an hour I followed it around the slide, noting its activities and its form, attempting to draw it. When “Jaiks” checked up on me some hours later I showed him my drawings and my find. Looking at it, he began to classify it, thinking to himself aloud...“segmented so probably an annelid worm...little hooks so probably a polychaete.” That was my first introduction to invertebrate taxonomy.

The term *biophilia* was introduced in the 1980s by Edward O. Wilson, one of the great biologists of the 20th century. He defines it as the “innate tendency of human beings and living things in general to affiliate with life and life-like processes,” and uses it to describe the affinities that human beings (and other living organisms) have for the natural world in general—for example, why we seek out water, greenery, open spaces, and healthy communities. In *The Creation – An appeal to save life on Earth*, written as a letter to American pastors, he discusses, among other things, the necessity and urgency of teaching love, respect, and care for the natural world, arguing that education in the biological sciences is important for the very survival of both humanity and the rest of Creation.

Drawing on his near half-century of teaching and research, he suggests five principles for the successful education of future citizen scientists: 1) **Teach top-down**, that is, begin with big questions that are provocative, of interest, and relevant to learners and use these to flesh out the details and introduce the appropriate level of complexity. Beginning top-down assists students in quickly and meaningfully constructing understanding, which is really a *bottom-up*, that is, emergent, phenomenon; 2) **Reach outside biology** is an appeal for the recognition that the biological sciences have become an important bridge among the natural, social, and human sciences, and that present projects are inter- and trans-disciplinary in nature; 3) **Focus on problem solving** is his third suggestion as *discipline*-based approaches to education gradually yield to the coming paradigm shift of *problem/interest/situation*-based approaches; 4) **Cut deep and travel far** is a plea for students to experience and pursue sufficient depth and breadth in their education, which is sometimes characterised as being a kilometre wide and a millimetre deep, or vice versa; and 5) **Commit yourselves**—his final principle—is an appeal to teachers of science, since, as he describes, “a teacher’s dedication is most effective when expressed through both the art of teaching and the demonstrated love of the subject for its own sake.”

I consider myself truly privileged to have witnessed the art and love of biology and biology teaching. “Ducky,” for example, loves biology and he passed that on to us. In the lower school, he got us out of the classroom to practise the essential skills of observing, recording, and researching the natural life around the school’s compound. In sixth form, he piqued our interest

with interesting facts about human sexuality, though later I would decide that the sexual mores of plants were far more devious and far more interesting. At UWI, Drs. Duncan and Oatham, and Mrs. Comeau (among others) also got us out of the classroom and immersed us in the natural beauty of Trinidad, while through Barclay, Charran, Umaharan, and others, I came to appreciate the necessity, patience, and skill of laboratory, greenhouse, microscope, microbiological and molecular work. Professor Kenny, who writes on the page adjacent to this column, is an inspiration, who continues to deepen my own biophilia, especially for Trinidad and the Caribbean, through his photography and expositions.

We are fortunate in having a diverse supply of forms most beautiful and wonderful from which to learn. We cannot take this for granted. Biophilia can be learnt, but we had best begin while it is not yet too late.

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