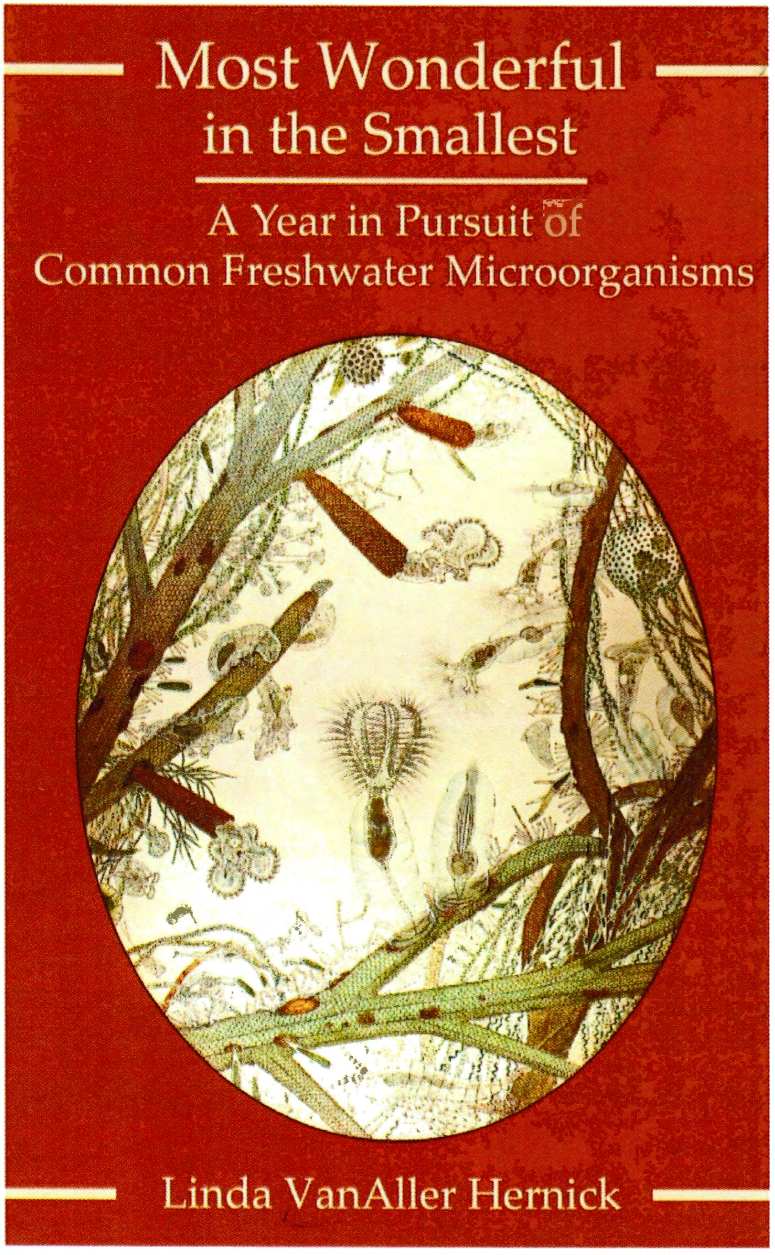
BOOK REVIEW

MOST WONDERFUL IN THE SMALLEST: A Year in the Pursuit of Common Freshwater Microorganisms by Linda VanAller Hernick *(review by Chris Thomas)*



When Linda's book arrived, I put it to one side until the evening, where, curled in my favourite armchair, I was transported to a very different New York State, where she lives.

Whilst the book is divided into the four seasons, it is really a collection of stories of 27 excursions to nearby waters, collecting samples and looking at them under the microscope. In each excursion, we get a flavour of the season and the location. This evocative extract is from the very last entry:

"Ostracod Ditch. 15°F…I chop through the ice near a culvert in the hope of finding a bit of water. As I chop, a passing truck slows and stops. It is a member of the town's road crew. He kindly inquires whether I am all right and I assure him that I am. There is an awkward pause. I know he wonders why I am on my hands and knees on the ice in the ditch but he is perhaps too embarrassed to ask. For my part I am too tongue-tied to explain. I smile, he smiles. We wave and off he goes. I retrieve my small sample and hurry home.

My first slide reveals a predominance of green algal filaments. The sight of living green is a shock after being surrounded by a white world for the past three months. Vaucheria, Spirogyra and a very thin filament, unknown to me, are present on every slide. Although it is still winter, life is on the threshold of renewal."

Scope

Rather than swamping us with a multitude of organisms, each excursion mentions two or three, with some interesting biological facts or helpful guide to identification. Just before you begin to wonder what this or that organism looks like, you find the next photo or series of photos that gives you a clear example. I read the book over three evenings. I was taken by the hand and immersed into each excursion and the later discoveries back home in her laboratory. By the end, I was surprised to find that I had learnt about 75 or more different life-forms under the microscope, from *Acanthocystis* sp to *Zygnema*

Photography

The high quality photographs are also an exercise in deceptive simplicity. In an age where the high priests of photomicrography invoke differential interference microscopy and photo-stacking to obtain the super-sharp images with a great depth of field, Linda shows that a simple photograph is just as good to demonstrate a species or feature.

Linda uses a Canon Powershot A590 camera, placed directly over the eyepiece of an AO Series 10 microscope. Other pictures are taken with a Canon EOST6s SLR on a Meiji trinocular microscope. The samples are illuminated either using brightfield or darkfield. The photos are an essential part of the book

Language

The modern approach is to use simple language for effective communication with your audience. I found Linda's style to be the exception to the rule in her unabashed use rich vocabulary and scientific terminology where relevant.

The illustrated text immerses you in the sampling trip and atmospheric scenery. When organism names and descriptions of the ribbons of spirogyra chloroplasts, ostracod carapaces, protozoan cilia or barium crystals appear, there is almost always a photograph nearby that explains what is meant.

Target Audience

I think that this book has a broad audience amongst those that are interested in nature and possibly taking up microscopy. It can simply be an interesting evening read for any armchair naturalist, but it can also be a great primer for someone wanting to get into microscopy, as different organisms are introduced without overwhelming the reader.

The young (early teen) science enthusiast who amasses dinosaur names without difficulty would enjoy this book. Microscopists and water scientists from amateur to professional will recognise a kindred spirit, delighting in the wonder of the world under the microscope. And as a jaded oldster, it has rekindled my enthusiasm, tempting me to go out and collect my own samples from surrounding waters again.

About the Author

Linda VanAller Hernick has been a professional using the microscope for most of her career. She took on challenges from screening for cancerous cells to 'scrutinising disaggregated rock samples for Cambrian-age microfossils'. Linda has previously published *The Gilboa Fossils* (New York State Museum Circular), which is available on Kindle. Now retired, her interest has become a passion for light microscopy.

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