

Growing Orchids in a Wardian Case – Creating a Rainforest Environment in Arid Calgary

By Erika Hargesheimer

Part 1 of 3

Introduction

At the November 2014 Foothills Orchid Society meeting, Adam Foster from the Orchid Society of Alberta gave an excellent presentation on Vivarium culture. As we heard, a Vivarium is an enclosure used to cultivate plants and animals in an environment where both can flourish together. While there are many similarities between a Wardian Case and a Vivarium, the emphasis in a Wardian Case is on the plants (orchids), while in a Vivarium the emphasis is primarily on creating a natural environment for animals using compatible plants (which may or may not include orchids). Orchids in a Wardian Case do not form a “landscape” for a little creature, but rather, the cultural needs of the plants are the focus of these very useful growing environments.

In this article, I'd like to firstly tell you a bit about the fascinating history of the development of the Wardian Case and its inventor Dr. Ward. Secondly, I'll share with you some of the cultural practices I have found to work well for my orchid collection of approximately 200 plants housed in two large Wardian Cases, as shown in Figure 1A and Figure 1B. There are many variations of Wardian Cases available today – basically enclosed environments with strict control of humidity, water, light and air circulation –, but that wasn't the case back in 1842. Read on to find out more!

History

So was there really a Dr. Ward and who was he? Yes, indeed, Dr. Nathaniel Bagshaw Ward (1791-1868) was an English physician and botanist. Because of the heavy smog from coal smoke, particulates and sulfuric acid in London in the 1800's, Ward was unable to propagate and grow his fern collection in his London garden. Dr. Ward had acquired fern species from all over the world. Can you imagine the losses his collection suffered before Dr. Ward came up with the idea for a sealed plant enclosure to house his treasured collection? Dr. Ward noticed that fern spores germinated and grew well (even in London) inside a sealed



Figure 1A

glass jar. From this “germ of an idea”, he developed and built the first enclosed glass cases to house his fern collection.

In 1842, Dr. Ward published his idea in a book entitled “*On the Growth of Plants in Closely Glazed Cases*” and I was amazed to find that this little book (in its entirety) is available to read free online at the Harvard University Library website. It’s quite an entertaining read full of colorful language, like for example, Dr. Ward’s description of the “fuliginous matter with which the air in large towns is always more or less loaded”. Dr. Ward also observed that “the best cover for the small cases is....the oiled silk of which bathing caps are made”. (I chuckled while reading as I pictured a row of glass beakers standing in his laboratory with large Victorian-era bathing caps snapped over the top!) As shown in **Figure 2**, the closely glazed case revolutionized the transportation of plants to and from the New World, by protecting them from salt spray, unfavorable temperature fluctuations and desiccation. Dr. Ward was right when he wrote: “I concluded that all plants would grow as well as the ferns, inasmuch as I possessed the power of modifying the conditions suited to the wants of the individual.” Well said Dr. Ward! That is still the goal of orchid hobbyists to this day: to create an ideal environment for growing and flowering orchids. Dr. Ward’s “closely glazed cases” allowed orchid fever to spread beyond the privileged English upper class. No longer was orchid culture restricted to those who could afford a large glasshouse and the gardeners that were required to maintain it. Now it became possible, with relatively little expense, for average citizens around the world to use these small glass enclosures to grow orchids and other exotic plants. So, it was Dr. Ward and his simple invention that helped fuel the “orchid craze” that continues today and has captivated all of us in the Foothills Orchid Society!

Wardian Case Set-up and Features

As shown in Figure 1A and Figure 1B, I keep my orchid collection in 2 Wardian Cases that sit on 2 tables. The dimensions of the cases are: 48 inches in length, 24 inches wide and 40 inches high. I bought these cases from a US manufacturer over 10 years ago. Unfortunately, I don’t think he is still in business because, while writing this article, I

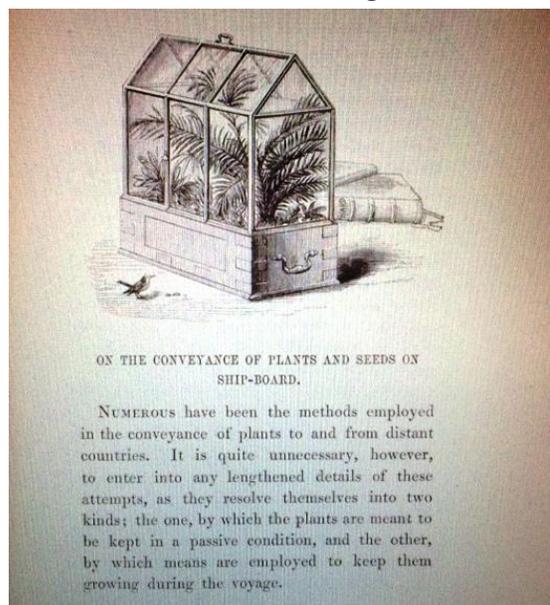


Figure 2



Figure 1B

looked up his business internet address and could no longer find the site. There are, however, many variations of the Wardian Case commercially available and they provide excellent growing conditions for orchids. I have found that the single most important key to successful orchid culture in an enclosed environment is very good air circulation.

Each of my cases has 2 glass side-walls, a glass back-wall and 2 sliding glass doors at the front. The 2 sliding doors allow easy access to the plants inside (**Figure 3**). You will notice in Figure 3 that I added weather-stripping to the edges of the sliding doors to ensure a good seal when the doors are closed. The two built-in muffin fans in each case provide excellent air circulation and run all the time. The glass walls all around the case make for excellent viewing and enjoyment of the flowers in the case. The base and top housings are stainless steel, which is attractive and easy to keep clean.



Figure 3

The “ceiling” of the case is a Plexiglas sheet with 6 sets of compact fluorescent bulbs resting on it. White plastic egg-crate lighting panel is used for the adjustable shelves and there is also a sheet of egg-crate panel in the bottom of the stainless steel base to ensure that the orchids don’t get “wet feet”. By varying the

placement of the shelves, the cases can accommodate a wide range of specimens, including large orchids in pots. There are plastic-coated green wire mesh sheets suspended from the back and side-walls of the case. An additional 2 “walls” of wire mesh essentially divide each case into 3 parts. These wire mesh panels are excellent supports for small mounted specimens. I have a lot of small orchid species and they respond well to the high humidity and misting provided by the watering system I built into the case.

Stay tuned for next month's installment...Misting and Watering

EDITOR'S WRAP

I would like to take this opportunity to wish everyone a very Happy New Year. In closing, I would like to say a "thank you" to Arlene Lang for her proofreading of Spike, she is fantastic; to Dave Cooper for answering my calls for help when the pictures dance all over the page; to Helen Nitschkie for letting everyone know that Spike is on the web; and last but not least, to all the contributors who help make Spike your newsletter.

The 2015 Show volunteer signup sheets will be at the January meeting. The success of our Show depends on your help!

Janet