

# Notes from the Oesper Collections

## The Single-Lens Microscope

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Normally the collection of microscopes is not a major focus of the museum portion of the Oesper Collections, which are dedicated instead to the preservation and collection of antique chemical apparatus. Nevertheless, there is some overlap, since conventional microscopes were used by chemists for microanalysis, and specialized microscopes – such as metallurgical microscopes for the study of alloys, polarizing microscopes for mineral analysis and the study of liquid crystals, and ultramicroscopes for the study of colloids – have all played a significant role in the evolution of chemical laboratory practice. However, as a by-product of the many donations we receive, we occasionally acquire a microscope which, if of only marginal interest with respect to chemistry, still possesses an inherent value and interest of its very own.

Such is the case with a recently acquired single-lens microscope that was among a group of items donated this December by Dr. O. B. Ramsay of the Department of Chemistry at Eastern Michigan University in Ypsilanti, and who reports that it was originally acquired by his father, who had been a high-school biology teacher in Maryland. This lovely brass micro-



Figure 1. The single-lens microscope donated to the Oesper Collections by Dr. O. B. Ramsay.



Figure 2. The reproduction of the single-lens microscope used by Charles Darwin during the voyage of the *HMS Beagle*.

scope comes with three interchangeable single lenses of varying power and, when in use, is mounted on the top of its small 5 3/4" x 3 1/4" x 2 1/4" wooden storage box (figure 1). Unfortunately the instrument does not carry a manufacturer's mark and doesn't match any of the simple antique microscopes found in the collections of the Royal Microscopical Society, though in its general features it most closely resembles item 293 of the catalog, which is described as a late 19th-century microscope for adolescents and other amateurs of probable French manufacture (1).

Not quite as attractive, but certainly more curious, is a single-lens microscope acquired for the collections several years ago at a local antique mall (figure 2). This is not an original, but rather a reproduction of an early 19th-century model, complete with fake worm holes and nicks. Like the French microscope in figure 1, it can be reversibly mounted on the lid of its storage box, which is over twice the size of the French model. The reason for its purchase was that it carries a brass plaque (not shown) proclaiming it to be an exact copy of the microscope carried by Charles



Figure 3. A single-lens Bausch and Lomb student dissecting microscope, circa 1930.

Darwin on his famous voyage aboard the *HMS Beagle* during the years 1831-1836.

It is not known when and why this so-called reproduction was made and, in fact, it bears little resemblance to the single-lens microscope belonging to Darwin that is on display at Down House, his home in Kent. In any case, it certainly attracted the attention of Dr. John van Wyhe of Cambridge University – organizer of the definitive Darwin archive, *Darwin on*

*Line* – when he visited UC in April of 2009 to speak as part of the university’s celebration of both the bicentennial of Darwin’s birth and the sesquicentennial of the publication of his book, *On the Origin of Species*

As portrayed in Brian Ford’s affectionate account, *Single Lens: The Story of the Simple Microscope*, prior to the development of effective achromatic lens systems in the 19th century, the evolution of the compound microscope was severely hampered and, as a result, the single-lens or simple microscope continued to play an important role in scientific discovery. Leeuwenhoek’s original microscopes were all single-lens, as were the field microscopes used by Linnaeus, William Withering (the discoverer of digitalis), Charles Darwin, and Robert Brown, who used his to discover the cell nucleus, Brownian motion, and cytoplasmic streaming. Indeed, this form of the microscope managed to survive well into the 20th-century in the guise of the simple student dissecting microscope (figure 3).

#### References and Notes

1. G. L. E. Turner, *The Great Age of the Microscope: The Collection of the Royal Microscopical Society Through 150 Years*, Hilger: Bristol, 1989, p. 270.
2. B. J. Ford, *Single Lens: The Story of the Simple Microscope*, Harper & Row: New York, NY, 1985.