

**UNUSUAL MICROSCOPES:  
THE ELGEET ZOOM PROJECTION MICROSCOPE  
Ingenious, Practical, and Extinct**

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**Figure 1. Description in the text.**

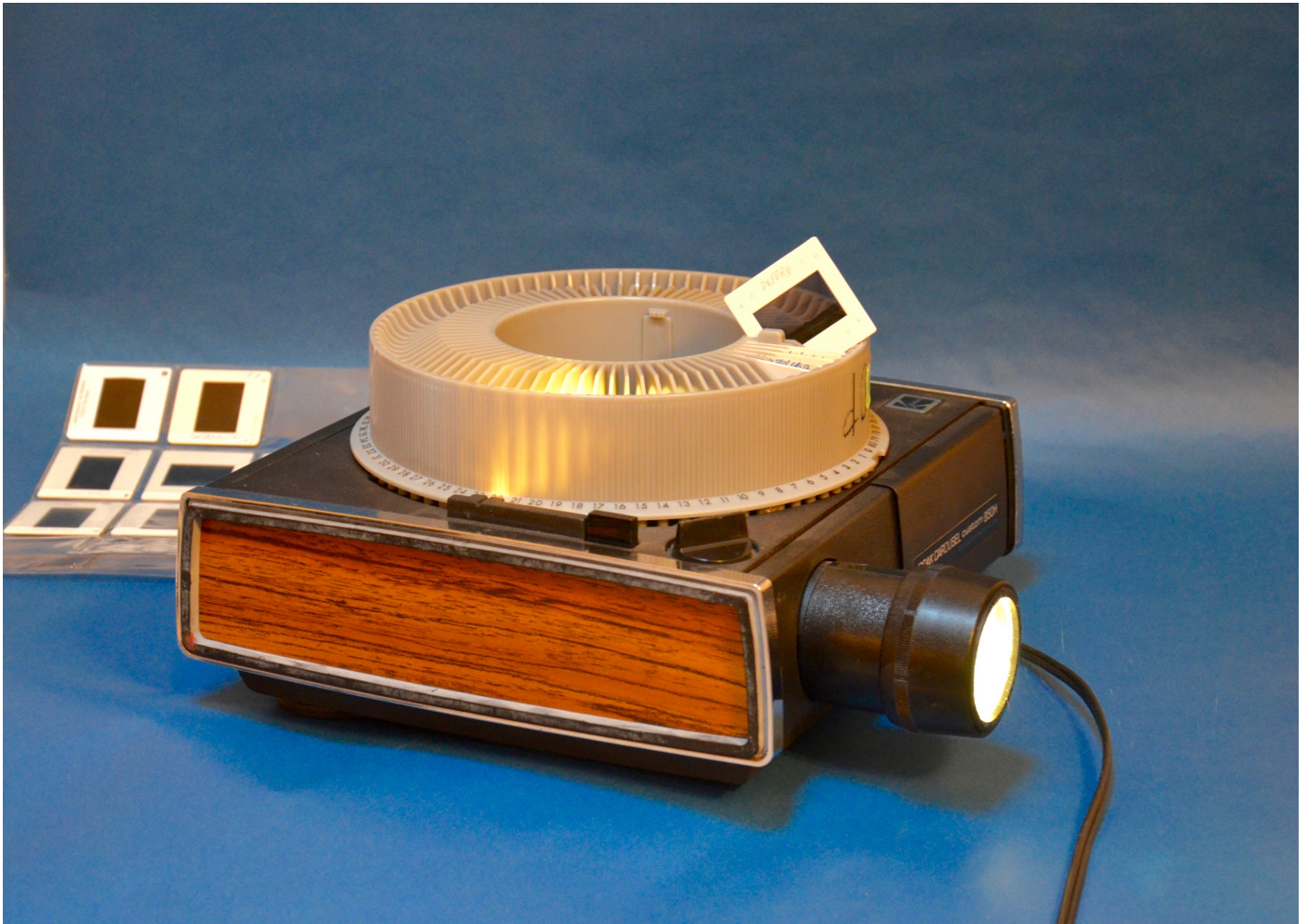
## INTRODUCTION

This article is the second of a series describing microscopes that represent dead-ends in the evolution of the instrument. The first article was published in Micscape in May 2014 [1]; it dealt with the Bausch and Lomb microscope called The Wide Field Tube. Here we will discuss the Elgeet Zoom-Microtar, a very different instrument that unfortunately, shared a similar fate with the Wide-Field Tube.

If we were to tell young people that: “Once upon the time there were microscopes designed to operate as attachments to slide projectors,” the assertion would likely elicit the question: “What is a slide projector?” The answer that it was a device used to project photographic slides on a screen, may only lead to a second question: “What are photographic slides?”

The world is changing incredibly fast, so for the benefit of those born around the year 2000 or later, let's first say that photographic slides were pieces of, most commonly, color film, with a size of 24 by 36 mm, mounted on cardboard or plastic frames. Since their size was too small to appreciate the images directly, the slides were viewed by projecting them on a screen, using a projector. This was an apparatus that consisted primarily of a strong light source, a projection lens, and a mechanism that brought slides, one at a time, into the light path. Figure 2 illustrates the projector and the slides for the benefit the

new and coming generations, and to facilitate the discussion that follows.



**Figure 2. A Kodak slide projector with its distinctive “Carousel” slide tray. The Kodak trays held, 80 or 140 slides, depending on type.**

Projectors and slides were ubiquitous; they could be found in teaching institutions, hospitals, research and industrial laboratories, and very many private homes. It was natural then that somebody would design a projection microscope that could use the slide projector light source and fit in the place of the (removed) projector lens. The Elgeet Company of Rochester, NY marketed such an instrument specifically to be used in conjunction with slide projectors made by the Eastman Kodak Company of Rochester, NY. The location and the times (circa 1970) were propitious. Rochester, NY, was home to a Bausch & Lomb operation that was producing microscopes by the tens of thousands, and bringing to the area workers with considerable optical know-how. The Eastman Kodak Company, an industrial giant, was producing slide projectors by the hundreds of thousands. All the elements were there. The Elgeet Optical Company originated from this rich background:

“The Elgeet Optical Company was founded by three young men who had been boyhood friends: Mortimer A. London, then [1946] a lens inspector at Kodak, with David L. Goldstein and Peter Terbuska of Ilex.” [3]

The firm’s name is an acronym of L, G and T.

Now all this is gone. The Bard said it: “There is a tide in the affairs of men.” [4]

## DESCRIPTION

**Elgeet, Rochester, New York. Microtar-Zoom projection microscope (fig. 1).** This description is based on a microscope that is item #334 in the MdC Microscope Collection, presently at the National Museum of Health and Medicine, Silver Spring, Maryland.

The base is an aluminum cylinder 5.2 cm wide and 6.4 cm tall; it is open at its lower end to receive and transmit the light emitted by a slide projector. The stage is circular, 4.7 cm in diameter, and it protrudes 1.0 cm from the base. An iris diaphragm is attached to the stage. The stage has a metal holder for standard 2.5 by 7.5 cm glass slides. The arm rises 2.2 cm above the stage and it ends in a horizontally placed ring that supports the microscope body. This ring carries the inscription "Made in U.S.A. by Elgeet Optical Co." The body is 5.5 cm tall when the ocular is pushed fully in. Focus is attained by displacing the body in or out of its supporting ring. The ocular carries the inscription "Elgeet Zoom-Microtar f1.5." Zoom is achieved by sliding the ocular in or out.

The microscope has a leatherette-covered box that carries the inscription "Elgeet Zoom-Microtar" on the outside. The inner surface of the cover carries the inscriptions "Elgeet Rochester, New York" and "Quality is our watchword ... Precision Engineering our constant goal."

**OPTICAL PERFORMANCE:** At a distance of 1 meter the image on the screen is enlarged 41.5X, with the ocular pushed fully out it can be zoomed up to 65X. The



images are very sharp but become dimly lit at distances greater than 1 meter. Designed to function as a projection attachment for Kodak 35 mm slide projectors, and highly portable, this instrument performs very well as a low power compound microscope on its own. All that is need in this situation is to aim the base to a light source; the skylight works particularly well.

The Elgeet Microtar projection model appears to be extremely rare; in many decades of dealing with microscopes and photographic equipment, and searching for offerings of antique equipment (eBay and other sources), we have never seen another example, neither have we seen advertisements for this instrument. A Google search shows a single hit under the revealing title of “What is it?” [5]

## **DISCUSSION**

Elgeet was not alone in thinking that a slide projector would make a good base for a projection microscope. An example is the well-known Pradovit Micro-attachment produced by Ernst Leitz GMBH, at Wetzlar. [6]

There are similarities as well as substantial differences between the Elgeet Zoom and the Pradovit. The basic concept was the same, to take advantage of the strong light source on which slide projector design was based. The differences however, were significant.

The Elgeet Microtar-Zoom was designed for use with the Kodak slide projectors in the Carousel, “amateur” version (Figures 2 above, and 3 below), or the Ektagraphic, “professional” version (Figure 4). The magnification range obtained by zooming was a modest 1.5, from 41.5X to 65X. As noted above, the Elgeet was able to function as a stand-alone low power microscope.



**Figure 3. The Elgeet Microtar on a Kodak Carousel projector.**

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**Figure 4. The Elgeet Microtar on a Kodak Ektagraphics projector.**

The Pradovit was designed as an attachment to the Prado slide projector; because of its configuration it was not capable of working independently of its projector. The Prado with objectives from 3.5X to 25X provided a magnification range of 7 times (Figure 5) [3]





**Figure 5. Prado Projector with Pradovit micro-attachment serial #191766, circa 1955.** Produced by Ernst Leitz GMBH, Wetzlar, Germany, this instrument is microscope #088 in the MdC Microscope Collection. Originally owned by the Ellis Fischel Cancer Center of the University of Missouri, presently it is part of the Rare Book Collection, Edward Miner Library, University of Rochester, Medical School.

The end of the projector-based microscopes was the result of a chain reaction. The demise of the photographic slides as a result of the Digital Revolution brought about the demise of the slide projectors, and this naturally the demise of this type of microscope. This is however, not a story of loss. The projection of slides on a projection screen is now replaced by the display of the photographic image on computer screens (Figure 6). The image can be displayed, enhanced for optimal visibility, stored, and shared across the room or across the world; its features can be selectively enhanced, or automatically quantified for scientific or technical studies. All this is infinitely more than any projection microscope could ever achieve; this is progress.

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**Figure 6. The image of a section of *Iris germanica*, seen in dark-field and displayed on the Retina screen of a MacBook laptop computer.**

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## SOURCES

- [1] del Cerro, Manuel and Dietmar R. Krause: Unusual Microscopes: The Bausch & Lomb Wide-Field Tube. MicScape, May 2014.
- [2] Kingslake, Rudolf. The Rochester Camera and Lens Companies. Rochester NY, Photographic Historical Society. 1974 <[www.nwmangum.com/Kodak/Rochester.html](http://www.nwmangum.com/Kodak/Rochester.html)>
- [3] 1950-60's PRADO Projector w/ Microscope <Attachment. [www.Leitzmuseum.org](http://www.Leitzmuseum.org)>
- [4] Shakespeare, William: Julius Caesar Act 4, scene 3, 218–224.
- [5] What is it? <http://55tools.blogspot.com/2012/09/set-458.html>
- [6] [https://www.google.com/search?q=E.+Leitz,+Prado+Projector&rlz=1T4GUEA\\_enUS661US661&tbm=isch&imgil=gCK3PqP1d9niMM%253A%253B02aZxs1objXo\\_M%253Bhttp%25253A%25252F%25252Fcollectionsonline.nmsi.ac.uk%25252Fdetail.php%25253Ftype%2525253Drelated%25252526kv%2525253D102103%25252526t%2525253Dpeople&source=iu&pf=m&fir=gCK3PqP1d9niMM%253A%252C02aZxs1objXo\\_M%252C\\_&biw=1262&bih=750&usg=\\_\\_OkImZk\\_aBz0\\_DH-HNvOYstWEr2s%3D&ved=0CCcQyjdqFQoTCNHd-PGz5sgCFQFWPgodYvgEqw&ei=tmUxVtGqB4Gs-QHi8JPYCg#imgil=gCK3PqP1d9niMM%3A&usg=\\_\\_OkImZk\\_aBz0\\_DH-HNvOYstWEr2s%3D](https://www.google.com/search?q=E.+Leitz,+Prado+Projector&rlz=1T4GUEA_enUS661US661&tbm=isch&imgil=gCK3PqP1d9niMM%253A%253B02aZxs1objXo_M%253Bhttp%25253A%25252F%25252Fcollectionsonline.nmsi.ac.uk%25252Fdetail.php%25253Ftype%2525253Drelated%25252526kv%2525253D102103%25252526t%2525253Dpeople&source=iu&pf=m&fir=gCK3PqP1d9niMM%253A%252C02aZxs1objXo_M%252C_&biw=1262&bih=750&usg=__OkImZk_aBz0_DH-HNvOYstWEr2s%3D&ved=0CCcQyjdqFQoTCNHd-PGz5sgCFQFWPgodYvgEqw&ei=tmUxVtGqB4Gs-QHi8JPYCg#imgil=gCK3PqP1d9niMM%3A&usg=__OkImZk_aBz0_DH-HNvOYstWEr2s%3D)



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