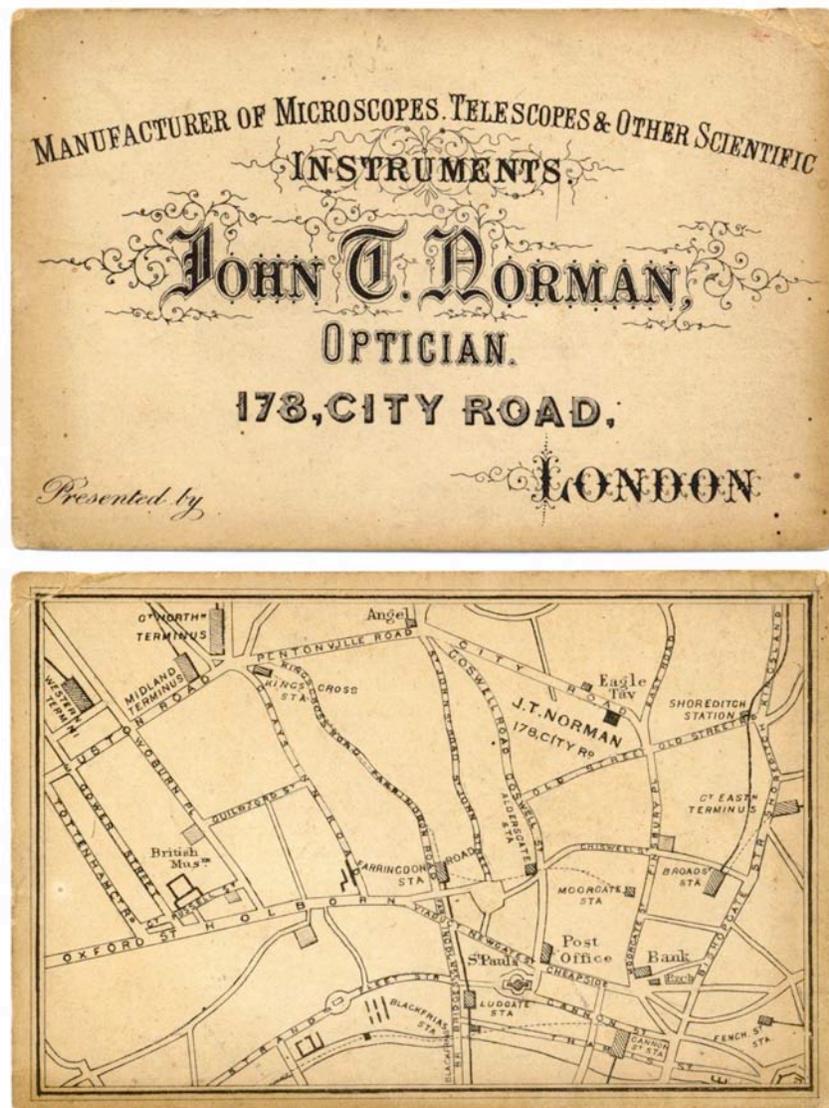


## A Rare Microscope by John Norman, ca. 1867

by Brian Stevenson, Kentucky, USA

John T. Norman is now one of the best-known microscope slide makers of the Victorian era. He and his sons produced large numbers of high quality slides for approximately 90 years. All good collections of antique slides should have abundant examples of Norman's work.

Although Norman's trade cards and contemporary sources state that he also manufactured microscopes (Figure 1), no such microscope was known to exist. Indeed, when I wrote several years ago of Norman having made microscopes, a noted microscopy historian protested, citing the lack of physical evidence. I now report that a Norman-signed microscope has been located (Figures 2, 3, and 4). The instrument matches Hogg's 1867 description of Norman's "Universal Educational Microscope" (Figure 5).



**Figure 1.** Front and back views of a business card from J.T. Norman, 178 City Road. Courtesy of Norman's great-great-great grandson, Leon Chambers.



**Figure 2.** Recently discovered example of a John Norman “Universal Educational Microscope”. The instrument lacks its original lenses, and the “revolving wheel of diaphragms” was long-ago removed, but it is otherwise functionally intact. The “large sliding-piece” fits a bevel on each side of the stage, allowing the microscopist to easily move an object forward-and-back. There is no left-to-right movement. The large vertical knurled knob screws the arm onto the racked bar. The smaller knob is the fine focus, a screw that presses against an internal lever which raises and lowers the objective lens within the body tube. The mirror is one-sided. The instrument’s height adjusts from 12 to 14 inches / 30.5 to 35.5 cm. It is threaded for a standard, RMS-threaded objective lens. The original ocular lens would have been 27 mm in diameter.



**Figure 3.** Engraving on the foot of the microscope.



**Figure 4.** Details of the stage and “large sliding-piece”. A previous owner(s) modified the microscope by drilling a countersunk hole in the center-front of the stage and a hole in the foot. The right image illustrates the microscope fitted with a standard (RMS)-threaded objective lens.

Norman's (178, City Road) Universal Educational Microscope consists of a well-finished stand with tripod foot and two uprights, with axis for giving inclination to the optical part. The body has quick and slow motions, one Huyghenian eye-piece, three achromatic object-glasses, viz. a  $\frac{1}{4}$ -inch dividing into  $\frac{1}{2}$  and 1 inch, all of fair defining power and English made. The stage has a large sliding-piece, and a revolving wheel of diaphragms; the mirror has sliding and oblique motions for the better illumination of the object under examination. The following apparatus is also supplied with the instrument:—a stand condenser with adjustment, stage and hand forceps, live-box or animalculæ cage, a frog-plate for viewing the circulation of the blood in the web of a frog's foot; also three good objects to test the different object-glasses, one hollowed and two plain slips, some thin glass. The whole is packed in a mahogany or walnut cabinet, with a drawer for objects, lock and key, and sold for the small price of 3*l.* 5*s.*

24 first-class objects, suited for the object-glasses, are supplied with this instrument for 1*l.* 1*s.*

**Figure 5.** Description of the Norman microscope by Jabez Hogg, from his 1867, sixth edition, of “*The Microscope: its History, Construction, and Application*”. The previous edition, from 1861, did not mention Norman as a supplier of microscopes, although Hogg did note Norman’s slides.

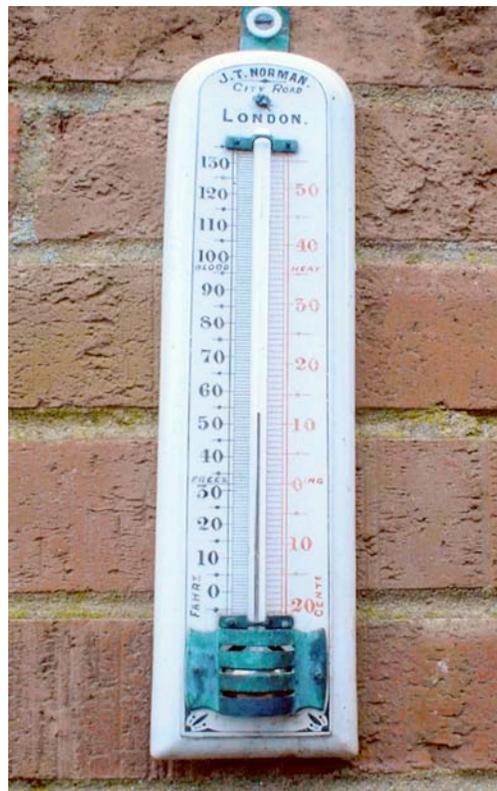
The Norman microscope did not possess any lenses when acquired. John Norman’s great-great-great grandson, Leon Chambers, owns a 2 inch Norman objective lens, pictures of which he has graciously provided (Figure 6). Thus, physical evidence exists that John T. Norman sold microscopes and lenses, in addition to slides. It remains to be determined if Norman constructed those instruments in their entirety, or just some of the components. Noting that he produced thinly-ground sections of minerals, including highly friable coal specimens, it is not unreasonable to hypothesize that John Norman was capable of grinding glass lenses.



**Figure 6.** A 2 inch microscope lens that is marked as having been made by Norman. Details on the lens were written on a piece of paper and stuck inside the canister lid. The handwriting appears to be that of John T. Norman. Courtesy of Leon Chambers.



**Figure 7.** A standard microscope slide and a magic lantern slide, both by John T. Norman and bearing his handwriting. An earlier owner marked out Norman's name from the labels on the lantern slide.



**Figure 8.** Another type of scientific instrument made by Norman. Courtesy of Leon Chambers.



**Figure 9.** An undated photograph of John Thomas Norman. Courtesy of Leon Chambers.

### **Acknowledgement**

My thanks to Leon Chambers for generously providing photographs of his ancestor and Norman's productions.

This and other illustrated essays on the history of microscopy can also be viewed at the author's web site, <http://microscopist.net>

### **Resources**

Bracegirdle, Brian (1998) *Microscopical Mounts and Mounters*, Quekett Microscopical Club, London, pages 71-72, 132-133 (plate 14, slide C), and 158-159 (plate 27, slides B through Q)

Hogg, Jabez (1861) *The Microscope: its History, Construction, and Application*, 5<sup>th</sup> edition, Routledge, Warne, and Routledge, London, page 495

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Stevenson, Brian (2009) J.T. Norman's retail shops on Queen Victoria Street and Whitecross Street, *Quekett Journal of Microscopy*, Vol. 41, 155-159

Stevenson, Brian (accessed November, 2013) John Thomas Norman, 1807 – 1893, and his microscopist family, <http://http://microscopist.net/NormanJT.html>