

More Early Printed Ephemera of London Instrument Makers Instructions and Advertising Broadsheets

Part 3: Instructions for using microscopes: 1706 – c. 1730

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The 'Wilson' Screw-barrel Microscope

In the late autumn of 1702 the highly prestigious *Philosophical Transactions* issued by the Royal Society, opened with a short paper describing and illustrating a set of simple microscopes made by and to the design of one James Wilson.¹ The provision of a single lens instrument fitted with screw-barrel focusing, together with a compass microscope, enabled the user to view transparent and opaque objects, and fluids. A set of pre-prepared slides was also provided. It was a most timely publication, for here were a set of instruments designed to meet the needs of the growing number of amateurs wanting to observe the minutiae of nature.² For what is now called the screw-barrel microscope, Wilson's design was derivative of continental practice, in particular of a design made in France as early as 1689 by the itinerant Dutch optician and natural philosopher, Nicholas Hartsoecker.³ Yet Wilson's total ensemble was original, and in a Europe where the community of savants was still being surprised by the discoveries of the Dutch linen draper and microscopist *extraordinaire*, Antoni van Leeuwenhoek, the potential of the simple microscope seemed immense.⁴ Dr John Harris FRS was particularly impressed by Wilson's package of instruments, and they were highly praised in his preface to the first English language scientific and technical dictionary, *Lexicon Technicum*, published in London in the summer of 1704:

I can't here omit mentioning the Ingenious Mr. Wilson, which I could not do in the Book, because those Sheets about the *Microscope* were printed off before I had seen Mr. Wilson or his Glasses. But I must now do him that Justice to say, That of all the *Microscopes* I have seen for Commodiousness, various Uses, Portability and Cheapness, I never met with anything like Mr. Wilson's Glasses. They are particularly described in the *Philosophical Transactions*.⁵

Perhaps because of the interest awakened by the article in the *Philosophical Transactions*, and the subsequent praise from Dr John Harris reprinted above, Wilson had the text re-printed as a separate pamphlet in 1706, with title opening: 'THE | DESCRIPTION | AND | Manner of Using | Mr. Wilson's Set of Pocket-Microscopes.' To ensure that the reader was fully aware of the status of the text, the title continued: 'Lately Publish'd in the | *Philosophical Transactions*, No. 281, | And mention'd in No 284, 285, &c....' This little eight page booklet appears to be the earliest English language printed instruction leaflet for a microscope. On those grounds alone it

deserves acclaim. The 1706 text closely follows that of the original article, but incorporates some subsequent minor design changes, for example a fitting on the screw-barrel for a handle, which is now shared with the compass microscope - the spiral spring of the slide holder being made from steel rather than brass. It is a very rare pamphlet, with so few examples known that the variant issues have not been recorded.⁶ The original plate, presumably because it was the property of the Royal Society's printers, had to be re-cut. To those familiar with surviving instruments, the pamphlet version shows a screw-barrel microscope of typical proportions, with the threaded barrel of greater diameter with respect to the outer frame than that shown in the earlier illustration published by the Royal Society. The male screw-stub standing out from the frame is not something that I have seen on surviving instruments, where the handle fits into a threaded orifice cut into the frame. At the foot of the left hand side of the plate is the engraved caption: 'M^r. Wilson's Microscope lately Describ'd in | the Philosophical Transactions N.º 281', another reminder of the tacit approval of the design provided by the initial publication. I presume that Wilson printed the booklet as instructions to accompany the instruments that he supplied, for nowhere in it does he give a trading address.

Having lauded the design, but failed to print an account or cite the actual number of the *Philosophical Transactions* in which Wilson's instruments had been described, Harris more than made good the omission when the second volume of his dictionary appeared in 1710. Here he reprinted verbatim the text of the 1706 pamphlet. This was presumably done with Wilson's approval and support for the illustration re-uses the pamphlet plate - Harris' engraver adding an instruction to the binder at top left hand: 'This Plate must be placed under y^e word | Microscope in y^e Quire 5C2 and squeezing in below the existing caption at bottom left: 'at the Willow tree in Cross Street Hatton Garden'. This later was vital information for readers who might want to purchase the instrument, which had once again been singled out for praise by Harris in the introduction to the second volume of the encyclopedia:

I have here, under the Word *Microscope*, given the Reader the Figure, Nature, Use and Advantages of Mr. Wilson's Glasses of that kind, which I could only just mention in the *Introduction* to my former Volume, and which I think myself oblig'd again to say, are the most ready, commodious, and universally useful of any Microscopes, I ever saw.⁷

The Science Museum Library holds a copy of the re-issue of Wilson's leaflet (Fig. 1).⁸

The title page and text are unchanged, but the fact that it is a later issue is apparent from the inserted engraved half leaf of text, plus a significant addition to the plate. The address inserted on the plate for the 1710 *Lexicon Technicum* use is retained - though the instructions to the binder have been slugged out. At the centre of the plate is inserted a panel of engraved text: 'He maketh all sorts of | Dioptrick or Catoptrick | Glasses as Telescopes | prospectes Camera Obscuras | Magicke Lanthorns. & | selleth the best of Spectacles, & reading Glasses &c'. confirming the implication in the printed text of both the journal article and the printed pamphlet that the designer and maker of the instruments was trading as an instrument maker, rather than a gentleman amateur. In their work for project SIMON, neither Michael Crawforth nor Dr Gloria Clifton found any other records of Wilson's activities, nor of his being a member of a London guild.⁹ So he remains a shadowy figure. Indeed, other than the provision of his Christian name, which appears only in the title of the *Philosophical Transactions* paper, what little we know of Wilson is drawn from this publication.

From the point of view of microscope design, the re-issue of the pamphlet is of particular interest for the plate illustrates the final and definitive change to the screw barrel design, a new fitting permitting the screw-barrel to be used to view opaque objects. The purpose is to replace the compass microscope provided for that use in 1702.¹⁰ The added half leaf of engraved text, bound between pages two and three, describes the use of the new part, which is illustrated as an additional figure, IV, added on the right hand side of the plate. There is another copy of this inserted text leaf in Thomas Court's collection of ephemera held by the Science Museum.¹¹ Court was well aware of the relationship, having written on the edge of the sheet 'The rare slip by J. Wilson 1706 placed in his pamphlet of this date.' In this context, I note that the re-issue of the 1706 pamphlet, was acquired by the Science Museum Library at the auction of Court's books in 1951.¹² Both this loose leaf and that bound in the re-issued pamphlet have identical and contemporary manuscript additions at the foot. The same hand has made corrections to the text on page five of the Science Museum copy of the re-issue of the pamphlet, corrections that are required to take account of the newly designed fitting. On the end paper, this hand supplied a contents list of the prepared slides. It is only conjecture to suppose that this is James Wilson's autograph - it could equally be that of an employee. A different hand seems to be responsible for