

earliest *Compound* Microscope that has its mirror attached to the limb.

In fixing the date of this Microscope we can assume that it is an instrument made by an amateur on the lines of some model before him. Now the Microscope he has evidently copied is that of Benjamin Martin (1760–1770)*; a signed and numbered (No. 1) example of which is in my possession.

It probably is not older than 1715, the date of the introduction of the mirror, neither earlier than 1760–1770, because its object-glass has a back lens; but, evidently, it is an old instrument made in the latter half of the eighteenth century. I have much pleasure in offering this instrument to the Society for its acceptance.

An Improved Horseshoe Stage.

By EDWARD M. NELSON.

WHILE working with a high power on a Microscope with a plain stage, having only a circular hole in it, great inconvenience was experienced in tilting the slide on its edge, for the purpose of feeling the working distance, when bringing the lens into focus; it therefore occurred to me that it would be a good plan to cut away all the brass in front of the circular hole and make what is now known as a "horseshoe stage." So in 1880, I asked Powell to cut out the stage of his iron Microscope † for me. The advantage was at once so apparent that I had three other instruments treated in the same manner.‡

This form of stage is now largely used. Although the advantage of this form of stage when ordinary slides are being examined is obvious, yet some objection may be raised when dishes and watch-glasses with convex bottoms are placed upon it, because of their liability to slide forward in the horseshoe opening. I have therefore designed this simple modification which will render this form of stage suitable for all purposes.

A flat plate of brass with a circular hole in it, having tongues at the edges to slide in grooves cut to receive them, is pushed into the horseshoe opening, when dishes, etc. are required to be placed upon the stage. When ordinary slides are to be examined the brass plate is withdrawn, and the horseshoe stage is left in its original condition.

* Journ. R.M.S., 1898, p. 474, fig. 81.

† Idem, 1899, pp. 209, 210, figs. 44 and 45, and 1900, pp. 289–291.

‡ Idem, 1883, p. 554, fig. 94; and 1887, p. 293, fig. 41, and p. 1013, figs. 238 and 239.

Fig. 150 (scale $\frac{1}{2}$) shows the horseshoe stage with the brass plate *in situ*, and fig. 151 shows the brass plate when withdrawn. In fig. 150 the X shows the optic axis, and it will be noticed that from the X to the top of the sliding bar is $1\frac{1}{2}$ in. (38 mm.), which is equal to the distance from the X to the top of the stage; therefore a slide $1\frac{1}{2}$ in. (38 mm.) wide can be examined from its

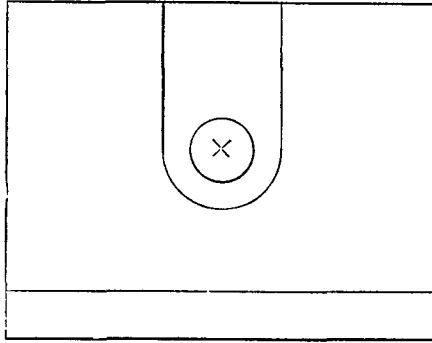


FIG. 150.

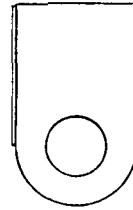


FIG. 151.

top to its bottom edge; also $\frac{3}{4}$ of an inch (19 mm.) of sideways movement can be given to a slip 3 in. (76 mm.) long, on each side, without causing the end to project beyond the stage. This means that a $1\frac{1}{2}$ in. (38 mm.) square on a slide measuring 3 by $1\frac{1}{2}$ (76 by 38 mm.) can be searched over without any portion of the slip projecting beyond the edge of the stage. The two lines at the bottom of fig. 150 indicate the sliding bar, but the lugs are not shown.