

19, Bloomsbury Street,

London. 11 July 1868.

W. C.

Rev Sir

I have to acknowledge the receipt of your last letter, and I have since looked over my computations for the optical part of the solar spy-glass.

The result is as follows. I find that the entry made when I had the pleasure of seeing you, refers to a Telescope 7 feet i.e. 84 inches, and upon this my calculations were based. Thus, the sun's image at the focal point for a Telescope of 84 inches is $.7812$, and in order to be quite clear, I allowed an aperture of $.9$ — Now, unfortunately, from your measure of the sun's image, as contained in your last letter, it is clear that your Telescope must be of longer focal

length than that specified by you
when here, viz 84 inches, and hence
the unfortunate error in construction—
I fear there is no remedy but to ask
you to return the solar eye piece complete,
mechanism and all, but before doing
so, it might be as well to remove
the slide, or shutter, and then to
unscrew the 3 small screws marked
a, a, a, in the enclosed sketch, and
take out the ring containing the
X wires—the aperture then I think
will be found sufficiently large to
admit of an image of the entire
sun's disk, and I should be glad
to know whether in other respects
the eye piece fulfils the conditions

specified by you - viz to produce an
image 22° at a distance of 50°

The colored fringes mentioned by you
are simply due to aberration from
diffraction, on account of the aperture
of diaphragm not being sufficiently
large, and this I think will vanish
when you have removed the circular
ring containing the cross wire

Awaiting the favor of your
reply

I am, Rev^d Sir,
Yours most obediently
J. H. Wallmeyer

The Rev^d P. A. Secchi

specified by you - say to produce an
image 22° at a distance of 30°

The colored fringes mentioned before
are simply due to aberrations from
diffraction, an account of the operation
of a telescope not being sufficiently
large, and this I think will remain
when you have removed the circular

ring containing the cross wire

transmitting the faint of power

reply

Samuel Beane Esq.

Your servant &c

J. H. Colburn

The Rev. P. A. Smith