

X. *A Letter from the Rev. Henry Miles, D. D. and F. R. S. to Mr. Henry Baker, F. R. S. concerning the green Mould on Fire-Wood; with some Observations of Mr. Baker's upon the Minuteness of the Seeds of some Plants.*

Dear SIR,

Read Feb. 15.
1749.

I Offer you a short Account of a Microscopic Object, together with a Specimen of the same, for your own Observation, at leisure.

Some Days ago, happening to take Notice of a Quantity of what we commonly call Mould*, on the Bark of some Fire-Wood, I had the Curiosity to view it with a Lens, of about an Inch Focus, which I carry about me, when I found it to consist of Numbers of minute *Fungus's*, whose regular Appearance invited me to examine them in the Microscope, with a good Magnifier; upon which their spherical Heads seemed as if they had been nothing else but Globules of Seeds; at the same time, I observed several Seeds adhering to the transparent Footstalks, which supported the Heads, and many scattered on the Glass-Plate, whereon the Substance was placed, in order to be viewed. And here I had an Oppor-

* Of a bright verdegriſe Colour.

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tunity of seeing many distinct Seeds, which appeared, nearly, of an oval Form, but several times larger than the Seeds of common Mushrooms, even when seen with the second Magnifier, and the latter with the first.

I pretend not to any Skill in Botany; sometimes, and, indeed, but seldom, I look into an Author on the Subject, as an Amusement and Relief to my Mind; therefore it would ill become me to attempt the referring this Plant to the proper Class. *Micheli*, in his *Nova plantarum genera*, has given us the Draught of some, which well represent the Figure of them, as they appear, when much magnified, TAB. LXXXII. *Fig. 1.* and in page 200. of his excellent Work, describeth them, under this Title, *Fungoidastri semine in superna parte donati*: But then his Figures are such as the Plants appear to have, to the naked Eye (as we may presume), since he does not say any thing to the contrary; not to mention that there are other different Characteristics in his Description. The same celebrated Writer describes another Species, p. 215. under the following Title, *Mucores pediculo donati*, which in respect of Size, the Substance, and some other Characters, correspond with these I am speaking of, well enough: But as he refers to Dr. *Hooke's* Micrographia, TAB. XII. for an elegant Figure of them (besides what he has himself given us TAB. 95.), both Dr. *Hooke's* and his own Figures represent the Heads, as quite smooth, on the Surface; and the Doctor, in his Description of them p. 126. expressly says they are of *a smooth Surface*. Whence I conclude this must be a different Species. However what the ingenious

Author of the *Micrographia restaurata* says of the Seeds of these diminutive Bodies, p. 19. is put out of all doubt.

Permit me to add, that having often viewed the Heads of a small kind of *Fungus*, which are about $\frac{1}{8}$ Inch Diameter, of a coriaceous Substance, I have ever found the Seeds which are produced on the Gills) much larger than those of any Mushrooms I ever examined, tho' rather less than those produced by this unregarded Plant.

Now, that a Body whose Form is not to be distinguished by the unassisted Eye, should produce Seeds several times larger than another of the same *Genus* does, which exceedeth it many Millions of times in Bulk, must suggest those Thoughts to one's Mind, which, I know, I need not point out to you: I shall therefore only beg Leave to assure you, that I am,

Dear Sir,

Your very much obliged

and obedient humble Servant,

Tooting, Jan. 31.
1749-50.

H. MILES.

Some

Some Observations on the above-mentioned Plants and Seeds By Henry Baker, F. R. S.

I Have carefully examined the Plants and Seeds sent me by Doctor *Miles*, in order to determine their real Bigness; and, taking the fungous Heads of the middle Size (some being larger and others smaller), I find, according to my Micrometer, that three of them take up the Side of a Square, 70 of which Squares make an Inch in Length, and consequently, that 3 times 70, or 210 of these *Fungi* are required to make a Line whose Length is one Inch; or, in other Words, that the Diameter of these fungous Bodies is, at a Medium, the 210th Part of an Inch.

The Seeds are oval; and I find, by the same Micrometer, that 10 of them laid by one another the shortest Way of their Diameter, or 8 of them the longest Way, fill up the Side of a Square, 270 of which Squares make an Inch in Length.—Taking therefore 9 at the Medium, 270 times 9, or 2430 of these Seeds will be required to make a Line of an Inch in Length; or, in other Words, each Seed is the 2430th Part of an Inch in Diameter.

And according to these Calculations 44,100 of the fungous Heads, or 5,904,900 of the Seeds may lie by one another in the Surface of an Inch square.

Yet minute as the Seeds of this little Fungus are, Dr. *Miles* observes, very justly, that they are larger than the Seeds of some Mushrooms, which exceed it many Millions of times in Bigness. As to which, I beg Leave to take Notice, that the Proportion, in Size of the Fruits or Seeds of Trees or Plants, to
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the Size of the Trees or Plants that bear them, comes under no Regulations that correspond with our Conceptions. For the vast Bulk of some sorts of Timber-trees (the Beech and Ash, for Instance) is produced from a Seed smaller than that of the common Garden Bean. The towering and mighty Oak produces for its Fruit only a little Acorn, whereas the Pumpkin (some whereof weigh above an hundred Pounds) is the Production of a feeble creeping Plant, unable to support itself, and much less its enormous Fruit. The *Vanilla* (a Plant that rises to the Height of several Feet, by clasping about whatever it finds near it) produces, in long Pods, Seeds so small, that their Diameter is not more than the 100th Part of an Inch. Supposing therefore the Cavity of the Pod to be equal to a cylindrical Tube of $\frac{1}{10}$ of an Inch Diameter, and the Length of the Pod to be six Inches (which Dimensions are taken with great Moderation) the Number of Seeds contained in one single Pod will be more than 47000. Most Kinds of Fern, of which some are pretty large Plants, bear Seeds so extremely minute, that they appear to the naked Eye only like a fine Dust; while Seeds of a considerable Bigness are produced by Plants of a great deal smaller Size. But many of the Gentlemen here present are so much better acquainted with these Matters than I can pretend to be, that I shall only presume to add, with how much Zeal I am

The Royal Society's

London, Feb. 7.
1749-50.

*Most devoted and obedient
humble Servant*

H. BAKER.