

In the *Fall* my Arm swell'd, gather'd, and burst ;  
so away went the Poison, Spots and all ; Heaven be  
thanked for ridding me from such a curst Adversary !

But the most surprizing and tormenting were my  
Dreams ; for, in all Sicknesses before, if I could but  
sleep and dream, I was happy so long ; being ever in  
some pleasing Scenes of Heaven, Earth, or Air : On  
the contrary, now if I slept, so sure I dreamed of  
horrid Places, on Earth only ; and very often rolling  
among old Logs. Sometimes I was a white Oak  
cut in Pieces ; and frequently my Feet would be  
growing into two Hickeries. This cast a sort of Damp  
upon my waking Thoughts, to find my sleeping Hours  
disturbed with the Operation of that horrid Poison.

Thus have I sent you a Narrative of what happened  
on the fatal Bite, without any Polish, with a Design  
only to be understood by you.

IX. *A Letter from R. Badcock, Esq; to Mr.  
Henry Baker, F. R. S. containing some Mi-  
croscopical Observations on the Farina fecun-  
dans of the Holyoak and the Passion-Flower.*

S I R,                      Kensington, Nov. 6. 1745.

Read April 10.  
1746.

A Few Days ago I return'd from *Rich-  
mond*; and, looking on the *Adver-  
tiser*, saw a Book publish'd by Mr. *Needham* \*, Part  
of which contain'd Observations on the *Farina fe-  
cundans*. As I before had (while at *Richmond*) made  
some myself, I immediately examin'd the Book, and  
find

\* *New Microscopical Discoveries, &c. Lond. 1745. 8o.*

find many of my Experiments so different from his, and some that have altogether escaped him, that, I flatter myself, mine will not be unacceptable; which has occasion'd my troubling you with this. I have likewise made some Experiments on that of the Passion-Flower; which differing very much, I shall take the Liberty to wait on you with next *Tuesday*. In the mean time I am,

S I R,

*Your most obedient humble Servant,*

R. Badcock.

*Experiments and Observations on the Farina of  
the Hollyhock.*

**T**HE first Experiment I made, was gathering the Bud of a Hollyhock so young, that the *Petala* were not yet form'd; and stripping off the *Calix*, nothing appeared, but the *Apices* close to the *Stylus* (for the *Stamina* were not yet perceptible): These *Apices* appeared to me to be a kind of Bag; and I could plainly perceive a Seam (if I may so call it) run down the middle of it. This occasion'd me to take a fine Needle, and carefully open them; which I did, and found each full of *Farina*, which seem'd to lie very regular. This determin'd me to take notice of the Course of the *Farina* in each Flower, and I observed the following Particulars:

*August 24.* I took notice of a Flower just going to blow, and the *Petala* appeared; the *Farina* was then just burst from its *Apices*. The Time of these  
U  
bursting

bursting is as soon as soon as ever the *Petala* blow out enough to be affected by the Sun.

25. The Flower opened more, and the *Farina* appeared so thick on the Outside of the *Apices*, that they seem'd quite cover'd from Sight, without a very narrow Inspection.
26. The *Farina* began to decrease visibly, and continued to do so till the
27. When I perceived some red curled *Stamina*, without any *Apices*, pushing themselves out at the Top thro' the others. These were, within their Bend, thick set with a kind of Hairs (*a*), and in their Passage took a good Quantity of *Farina* with them, which remain'd a Day longer than that which was contained in the *Apices*. I could not observe the *Farina* to fall on any particular Part of the Flower, but seem'd rather to be dispersed. When these red *Stamina* appear, the *Farina* is going, and the *Apices*, which contain'd it, dead.

The Flower was kept till it wither'd, and the *Stylus*, &c. cut off; but in neither Experiment was there found any Difference, after a Month's keeping the *Farina*, except in the Colour, which was deeper.

Cutting off the *Stylus*, (*b*) &c. may have a considerable Effect upon the Seed, but seems to have but little on the Flower: For, tho' it was cut off as soon as possible,

(*a*) I cannot observe any thing in this Flower, unless it be these, that deserve the Name of *Papillæ*: Tho' the first Magnifier could shew nothing satisfactory as to this Point.

(*b*) This Experiment I have now in Hand; and if any thing particular discovers itself, you shall know it, with its regular and daily Alterations.

possible, yet the Flower blew out the same as if nothing had happen'd, till about the Time that the *Farina* might be suppos'd to act; then the *Petala* began to look black next the *Stylus*, and dropp'd off a Day sooner than the regular blowing Flower.

Not having an Opportunity of pursuing this further, for want of Flowers and warm Weather, I applied myself to the Experiments of Mr. *Needham*, mentioned p. 74. I brush'd off some dry *Farina*, and, putting *Thames*-Water to it, found it would not burst, under the Space of 7 or 8 Minutes, and not till they are soak'd in the Liquid: For, at the Time of acting, they seldom or ever lie one upon another, but float off, till they are clear of all Incumbrances. But I observed one Particular, which seems intirely to have escap'd Mr. *Needham*, which was, That, on the Application of Water, they instantly emit a pellucid kind of Matter (much thinner than that at bursting) thro' their capillary Prickles, with which they are thick set. Upon the Application of *Bristol* Water they are found to burst much sooner, and with less Emission. In Vinegar they scarce ever burst; at least, if they attempt it, are instantly stopp'd by the Sharpness of the Liquor. I don't find Vinegar to have any other Effect than this.

In making my Experiments on a fresh-blown Holly-ock, I observed a *Lusus Naturæ* of two Globules quite smooth and shining (contrary to their Nature, which is rough): One of these acted very soon, the other not at all. The whole *Farina* seem to me to have a strong Suction; for I was oblig'd, in the Space of ten Minutes, to apply Water three times, in order for them to have enough to act in; and I observe,

that they burst with a greater Force, and throw out a much larger Pulp, when thrown into a Depth of Water.

Tho' I have been often obliged to supply them with Water, yet I find the greatest Number always act with the first Water. I have often seen a Globule, tho' it has been burst on one Side before, yet has burst a second time on the opposite. Which seems to me as if the first Aperture was instantly closed, so as not to emit again: For I have made it an Observation, that tho' the Pulp is never thrown out at the same Place a second time, yet the Globule, before it has done acting, shall have had so many Bursts, as to look like a Picture of a Bomb-Shell, with its various Discharges before the Separation of its Parts.

*P. S.* This is all I have been able to learn; but if any thing more falls under my Observation, you may depend on receiving an Account.

*Experiments and Observations on the Farina foecundans of the Passion-Flower.*

**T**HE Passion Flower I look upon to be the fittest Flower for Experiments on the *Farina*, of any. First, as it is large, and long in Bloom: Secondly, as the Flower by its Nature preserves itself and its *Farina* from Injury: For, no sooner is the Sun off of the Flower, but it gradually closes up as the Sun declines, till the *Petala* are so close, as not to admit any but very violent Showers. This, with the Disposition of the *Farina*, which is on the Inside of its *Apex*, when the Flower is closed, likewise preserves it

it from Wind. Add to this the infinite Quantity of *Farina*, which may be taken off (from the Largeness of its *Apex*) without any Force, Damage to the Flower, or itself. To this likewise we may add, that, after a Night's keeping gather'd, the *Farina* has the same Effect and Action in the Morning, as it had when fresh-gather'd: Which Quality no other *Farina* has. See Needham, page 77.

The *Farina* of the Passion-Flower appears (by Mr. Cuff's double reflecting Microscope) Magr. 6,5,4, to be a smooth round Globule, of a pretty full Yellow, like the Appearance N<sup>o</sup>. 1. which we suppose the *Area* of the Microscope. These Globules, on being more magnify'd, are found to have some three Circles (as N<sup>o</sup>. 2.) others two, others none. Among these I have found a considerable Number quite white, as attempted to be shewn in TAB. II. Fig. 2. N<sup>o</sup>. 1.; but I never observ'd these act. When the Globules N<sup>o</sup>. 2. come to be magnify'd with the first or second Magnifier, they appear indented, exactly like N<sup>o</sup>. 3. All the colour'd ones, tho' differently mark'd, yet all act alike. I observe that these act in a much less Space of Time than those of the Hollyhock, which are ten Minutes, tho' fresh; whereas these act instantly, tho' kept for 24 Hours (a): Neither have these any Suction or convulsive Motion; acting intirely still, and in the first Water. Attempting to apply them to the opaque Microscope after their Action, they stuck round the Point like wet Skins: But one Thing I observe, that they


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(a) I have since had a Flower lay in a Window from *Friday* Morning till *Monday*, and the *Farina* has acted very briskly.

they burst but once, throwing out all their pellucid Matter, which is yellow, at the first Discharge. They act no otherwise in Oil, but by emitting a Matter much thinner than that at bursting: But, having lain in Oil for a Minute, and put from thence into Water, they act instantly, and with a seeming additional Force. Being put into Malt-Spirits, they exhibit a very agreeable Appearance: All those which emit, as in Oil, lie dead and still; but those which neither burst nor emit, are thrown into so violent an Agitation, that they appear like Animalcules; sometimes joining ten or a dozen together; on a sudden, an imperceptible Force shall throw a Globule, sometimes (two or three) three Parts over the *Area* of the Microscope; often two Globules shall be whirl'd round with incredible Swiftnes, for the Space of near a Minute, then separated by the same imperceptible Swiftnes, fly each a different Way. They will act thus, till the Liquor may be supposed to dry up, when supplying them with Liquor, will regain their Motion; and tho' you put Liquor often to them, yet every time will give them that Swiftnes. Upon applying the Magnifyer, N<sup>o</sup>. 2. I find it is the white unact'g Globules that do thus, and imagine that they rise with that Spirit which evaporates; and their not being volatile occasions them to stop at Top, and continue this Motion as long as the Liquid has any Evaporation; for I observe, after a certain time, they lie like the others which have acted. In this Liquid they burst, in such a manner, as that the Places from whence they burst are perceptible (*See TAB. II. Fig. 2, N<sup>o</sup>. 5.*), and the Pieces broke off very plain. The Way I obtain'd a Sight of this, was to let the Globules

bules dry after their Action, on the Glas. Some burst so fierce as to break off a Piece, as N<sup>o</sup>. 5.; others can scarce be seen to have any Alteration: Yet no Magnifier will go so far as to shew the Matter thrown from them, any otherwise than as a yellowish Water.

Upon applying *Aqua fortis* to this *Farina*, the Shape and Marks are instantly changed to those mark'd in TAB. II. *Fig. 2.* N<sup>o</sup>. 4.; whereas, on the Hollyock, it has no other Effect than burning up their capillary Prickles.

The *Lilium flore reflexo* of Mr. *Needham* I have never seen; those kind of Flower having been a long time out of Bloom; but, as to this of the Passion-Flower, what is placed on the Top of the Pistil, the deepest Magnifier will not shew perfect: And tho' I have endeavour'd all possible means, could never obtain any thing satisfactory; so that I must freely own either my Misfortune or my Ignorance. On the Pistil of the Stockjny-Flower there are very plain to be seen some kind of capillary Tubes on its Top; but then they appear to stand thus , without any Aperture, as described by Mr. *Needham*. Whether these may have their Pores, or not, I am not able to say. I shall continue making Observations on this Part of the Flowers which may fall under my Inspection, and hope soon to be satisfy'd in this Point: But, as to his Opinion of the Action of the *Farina*, I cannot, at present, grant it any other active Power than Suction; for had there been any inward Mechanism, the various Experiments I have try'd must have shewn it in some Shape or other; whereas those who have  
the



the greatest Motion before Action, I can only observe to swell, and look larger, on the almost immediate Application of Water.

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X. *Part of two Letters from the Rev. Henry Miles, D.D. & F. R. S. to Mr. Henry Baker, F. R. S. containing some Electrical Observations.*

## I.

*Dear Sir,*

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*Read April 17.  
1746.*

ON my making use of one of my Boxes fill'd with Pitch, Wax, &c. for the Person to be electrify'd to stand upon, after using it a little while successfully, I got the Man who assist'd to wipe the Surface of the Pitch, &c. with a dry clean Cloth, suspecting, from the Place it had stood in, some Dampness might lodge thereon. This being done, for my Satisfaction I set up the Box on one Side, and held a Thread of Trial at a proper Distance, and found it to attract and repel the same: But, on setting it down, and standing upon it, by no means could it be made appear that I was electrify'd, or any other Person who stood thereon afterwards. I thereupon took another Box of the same sort, but made use of it without wiping it, and it performed well. This I have not yet repeated, but intend to do it.

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Fig. 1. p. 146.

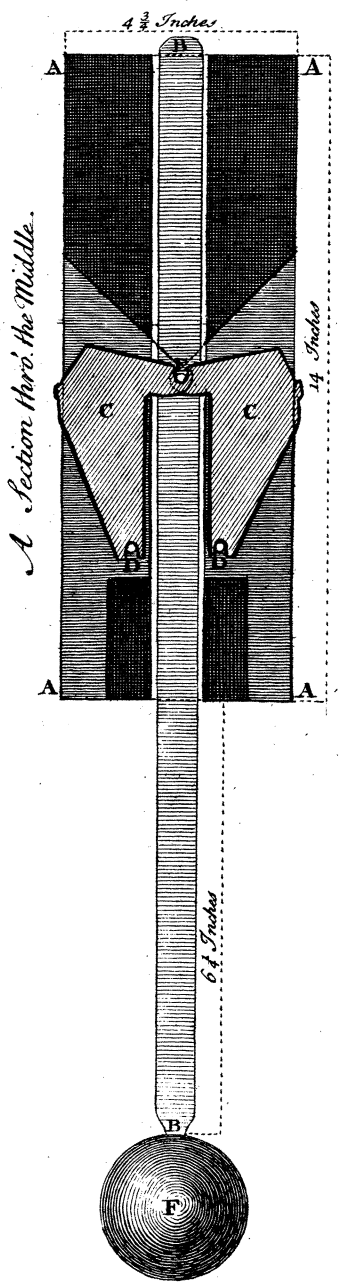


Fig. 2. p. 155.

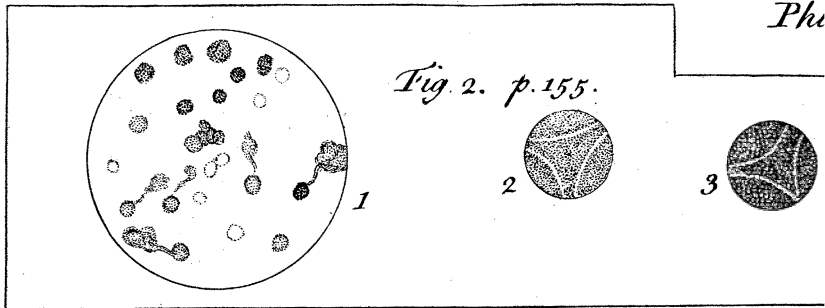


Fig. 4. p. 169.

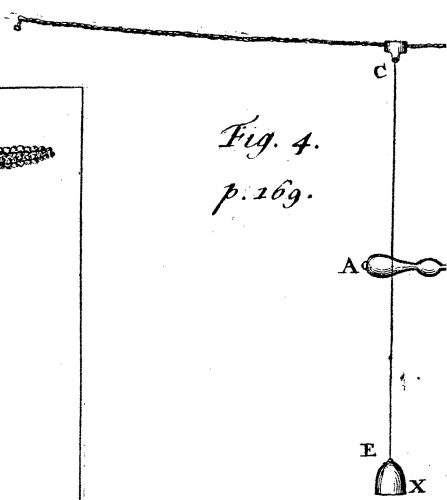


Fig. 3. p. 167.

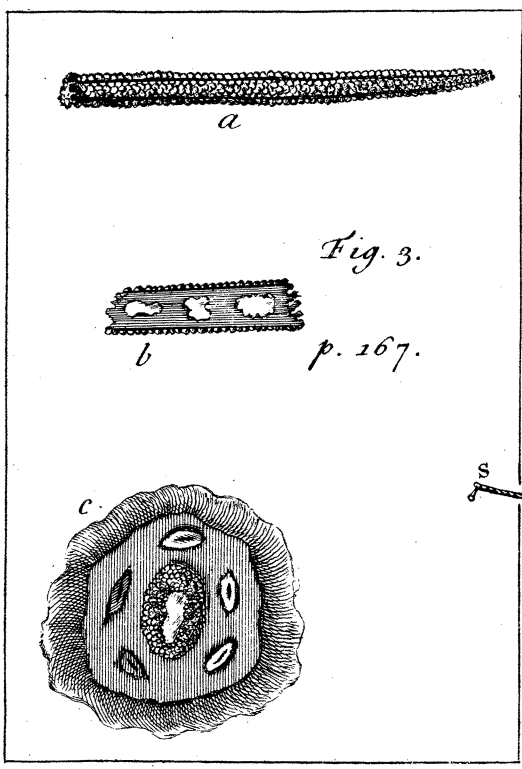
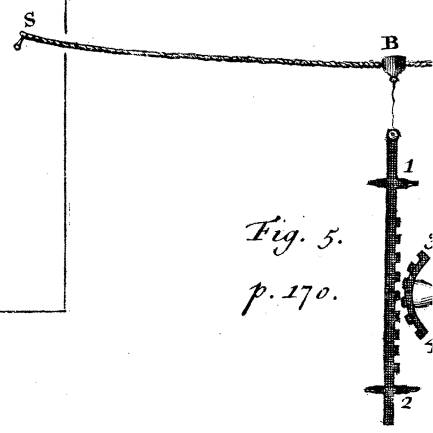


Fig. 5. p. 170.



*Philos. Trans. N<sup>o</sup> 479. TAB. II.*

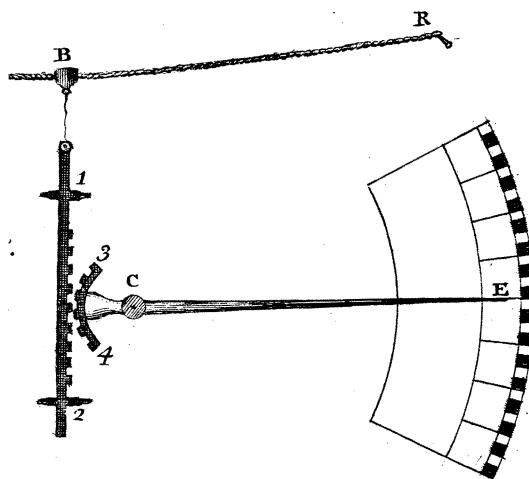
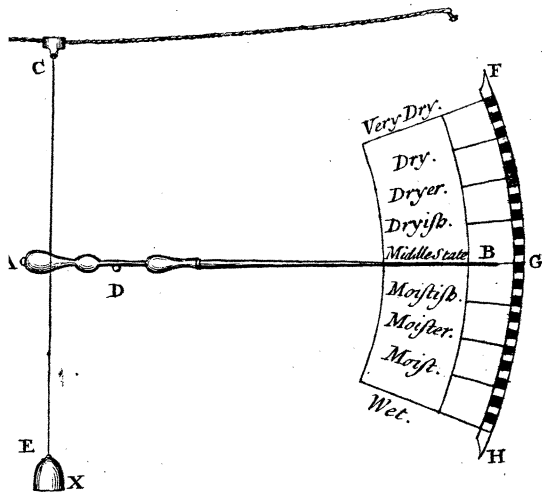


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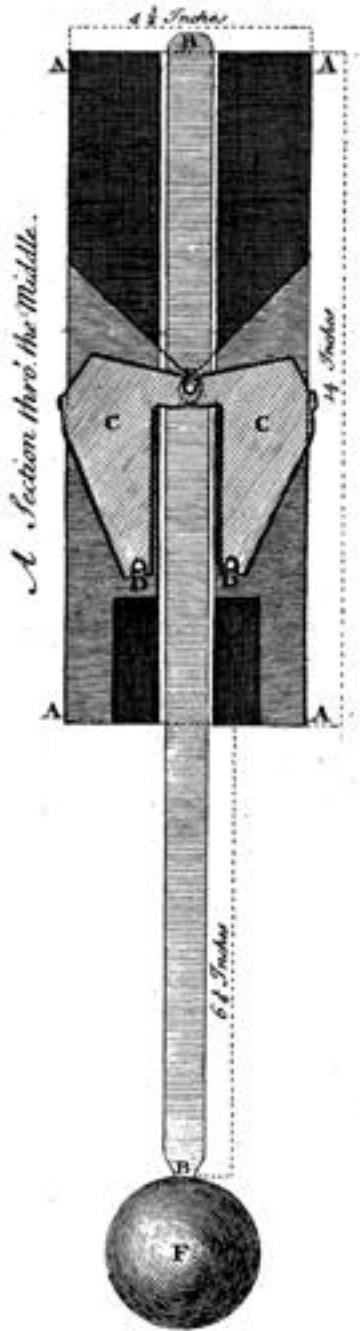


Fig 2. p. 155.

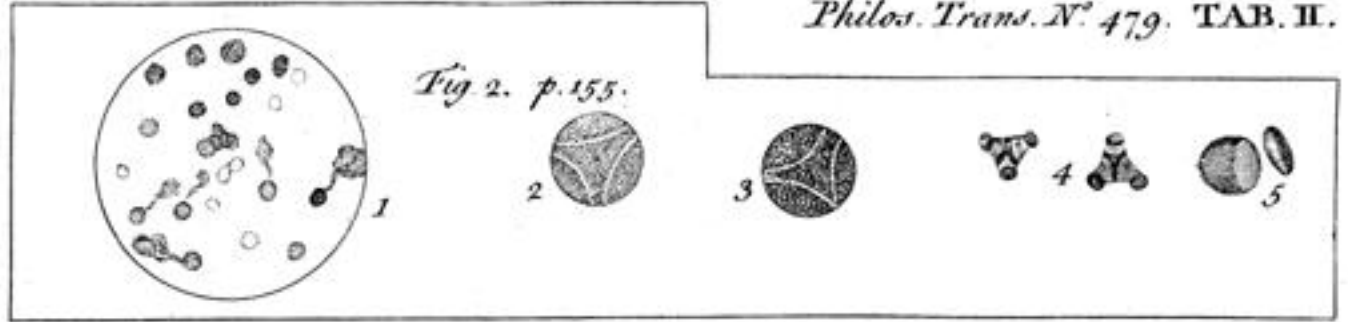


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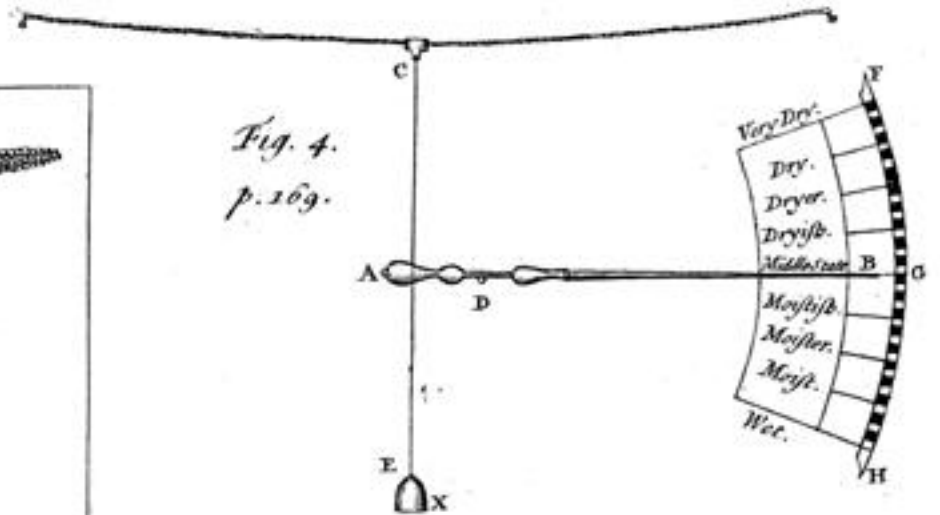


Fig. 3.  
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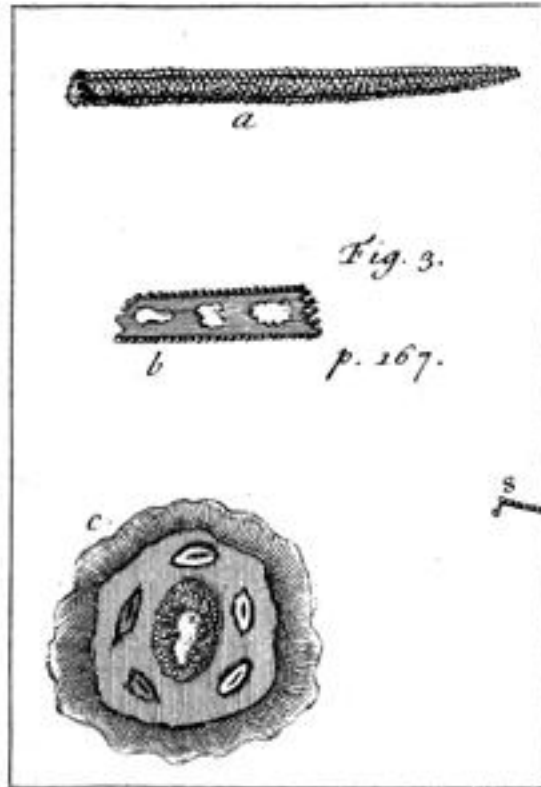


Fig. 5.  
p. 170.

