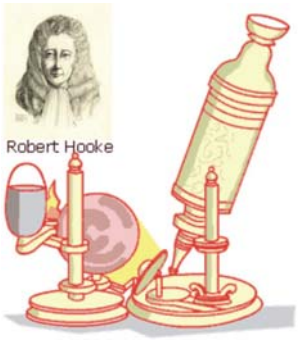
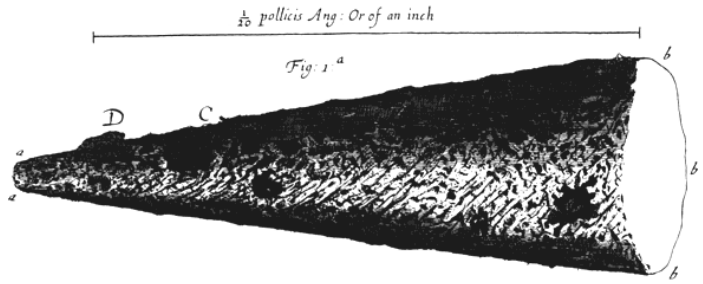


Pieces of text and drawings form Robert Hooke's *Micrographia* (1665)

Of the Point of a sharp small Needle

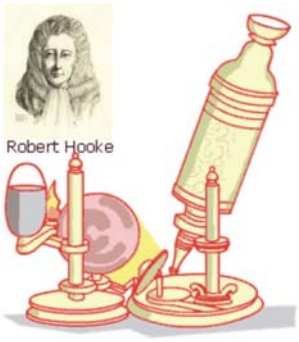
"We will begin these our Inquiries therefore with the Observations of Bodies of the most *simple nature* first, and so gradually proceed to those of a more *compounded* one. In prosecution of which method, we shall begin with a *Physical point*; of which kind the *Point of a Needle* is commonly reckoned for one; and is indeed, for the most part, made so sharp, that the naked eye cannot distinguish any parts of it: It very easily pierces, and makes its way through all kind of bodies softer then itself ...



But if viewed with a very good *Microscope*, we may find that the *top* of a Needle (though as to the sense very *sharp*) appears a *broad*, *blunt,* and very *irregular* end; not resembling a Cone, as is imagined, but only a piece of a tapering body, with a great part of the top removed, or deficient ...

The image we have here exhibited in the first Figure, was the top of a small and very sharp Needle, whose point *aa* nevertheless appeared through the *Microscope* above a quarter of an inch broad, not round nor flat, but *irregular* and *uneven* ... The surface of which, though appearing to the naked eye very smooth, could not nevertheless hide a multitude of holes and scratches and ruggednesses from being discovered by the *Microscope* to invest it, several of which inequalities (as A, B, C, seemed *holes* made by some small specks of *Rust*; and D some *adventitious body*, that stuck very close to it) were *casual*. All the rest that roughen the surface, were only so many marks of the rudeness and bungling of *Art*."

Let us observe the point of a needle under the microscope. Can we make a drawing and write a description, as Hooke has done?



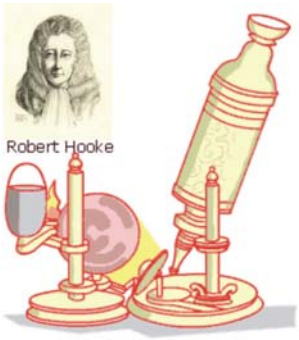
Pieces of text and drawings from Robert Hooke's *Micrographia* (1665)

Observation of a *point*, commonly called, the mark of a *full stop*, or *period*.

"And for this purpose I observed many both *printed* ones and *written*; and among multitudes I found *few* of them more *round* or *regular* then this which I have delineated in the third figure of the second Scheme [see below], but *very many* abundantly *more disfigured*; and for the most part if they seemed equally round to the eye ...

But to come again to the point. The *Irregularities* of it are caused by three or four *coadjutors*, one of which is, the *uneven surface* of the *paper*, which at best appears no smother then a very course piece of *shagged cloth*, next the *irregularity of the Type* or *Engraving*, and a third is the *rough Daubing* of the *Printing-Ink* that lies upon the instrument that makes the impression, to all which, add the *variation* made by the Different *lights* and *shadows*, and you may have sufficient reason to guess that a *point* may appear much more *ugly* then *this*, which I have here presented, which though it appeared through the *Microscope gray*, like a great splatch of *London* dirt, about three inches over; yet to the *naked eye* it was *black* and no bigger then that in the midst of the Circle A."

Let us observe some printed and handwritten dots under the microscope. Can we make a drawing and write a description, as Hooke has done?

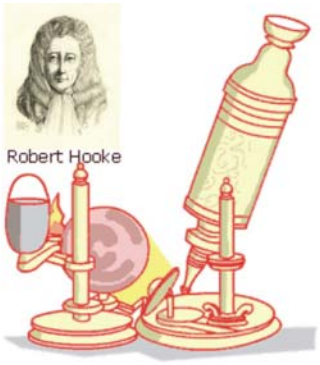


Pieces of text and drawings from Robert Hooke 's *Micrographia* (1665)

O f t h e s e e d s o f T h y m e

"These pretty fruits here represented, in the 18. *Scheme*, [see drawing aside] are nothing else, but nine several seeds of Thyme; they are all of them in differing posture, both as to the eye and the light; nor are they all of them exactly of the same shape, there being a great variety both in the bulk and figure of each seed; but they all agreed in this, that being looked on with a *Microscope*, they each of them exactly resembled a Lemmon or Orange dried; and this both in shape and colour. Some of them are a little rounder, of the shape of an Orange, as A and B, they have each of them a very conspicuous part by which they were joined to their little stalk, and one of them had a little piece of stalk remaining on; the opposite side of the seed, you may perceive very plainly by the Figure, is very copped and prominent, as is very usual in Lemons; which prominences are expressed in D, E and F. They seemed each of them a little creased or wrinkled, but E was very conspicuously furrowed, as if the inward make of this seed had been somewhat like that of a Lemon" ...

Let us observe some seeds of thyme under the microscope. Can we make a drawing and write a description, as Hooke has done?

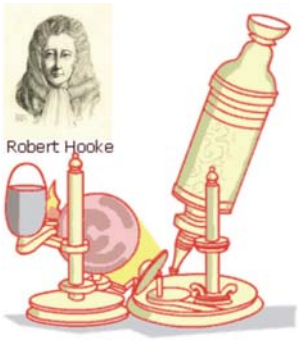


Pieces of text and drawings from Robert Hooke's *Micrographia* (1665)

Observation of petunia seeds and plants

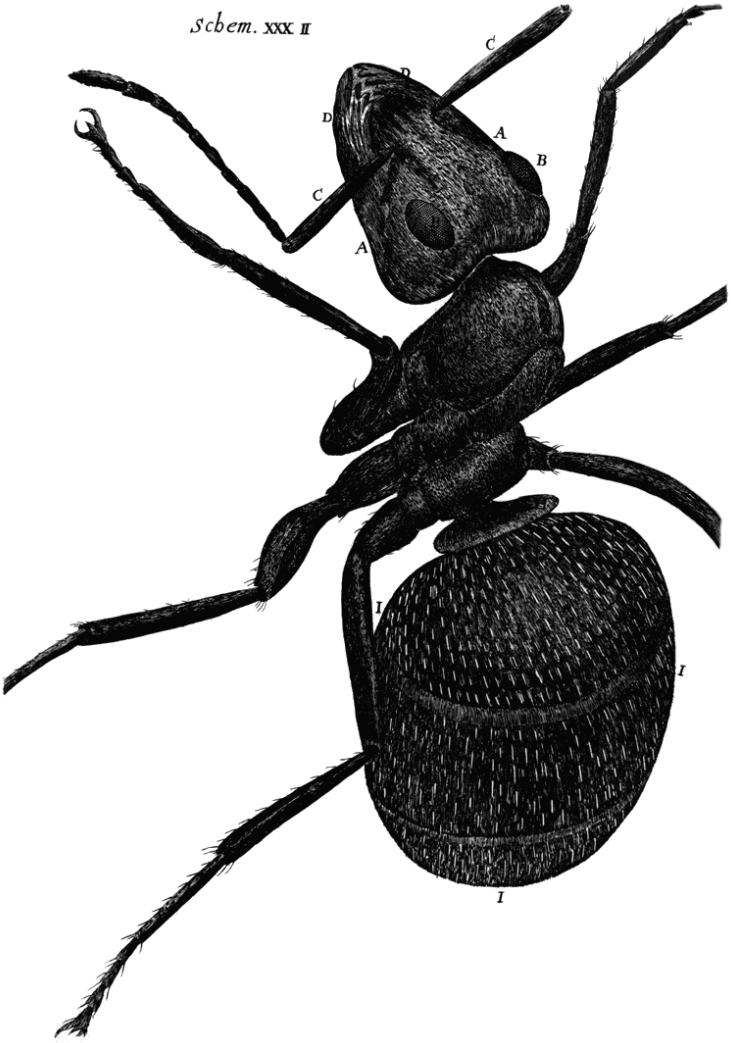
Let us observe some seeds of petunia under the microscope. Can we make a drawing and write a description, as Hooke has done?

Let us observe some parts of the petunia plant (roots, sprout, leaves, flowers etc.) under the microscope. Can we make a drawing and write a description, as Hooke has done?



Pieces of text and drawings from Robert Hooke's *Micrographia* (1665)

Of an Ant



"This was a creature, more troublesome to be drawn, then any of the rest, for I could not, for a good while, think of a way to make it suffer its body to lay quiet in a natural posture; but whilst it was alive, if its feet were fettered in Wax or Glue, it would so twist and wind its body, that I could not any ways get a good view of it; and if I killed it, its body was so little, that I did often spoil the shape of it, before I could thoroughly view it ...

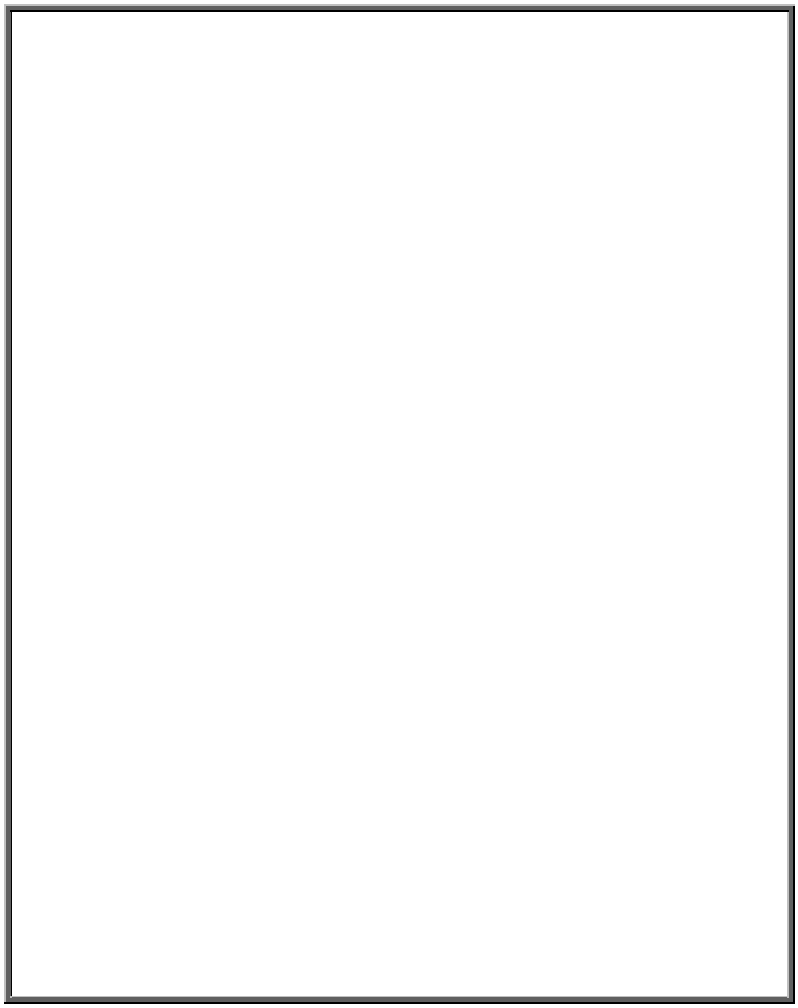
Having ensnared several of these into a small Box, I made choice of the tallest grown among them, and separating it from the rest, I gave it a Gill of Brandy, or Spirit of Wine, which after a while even knocked him down dead drunk, so that he became moveless, though at first putting in he struggled for a pretty while very much, till at last, certain bubbles issuing out of its mouth, it ceased to move; this (because I had before found them quickly to recover again, if they were taken out presently) I suffered to lay above an hour in the Spirit; and after I had taken it out, and put its body and legs into a natural posture, remained moveless about an hour; but then, upon a sudden, as if it had been awaken out of a drunken sleep, it suddenly revived and ran away ...

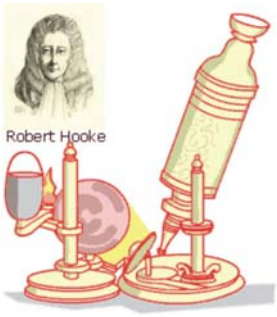
This Creature appeared through the *Microscope*, in the 32 *Scheme* [see above] ... had a large head AA, at the upper end of which were two protuberant eyes, pearled like those of a Fly, but smaller BB; out of the Nose, or foremost part, issued two horns CC, of a shape sufficiently differing from those of a blew Fly, though indeed they seem to be both the same kind of Organ, and to serve for a kind of smelling; beyond these were two indented jaws DD, which he opened side-ways, and was able to gape them asunder very wide; and the ends of them being armed with teeth, which meeting went between each other, it was able to grasp and hold a heavy body, three or four times the bulk and weight of its own body. It had only six legs, shaped like those of a Fly ...

The third and last part of its body III was bigger and larger then the other two, unto which it was joined by a very small middle, and had a kind of loose shell, or another distinct part of its body H, which seemed to be interposed, and to keep the *thorax* and belly from touching.

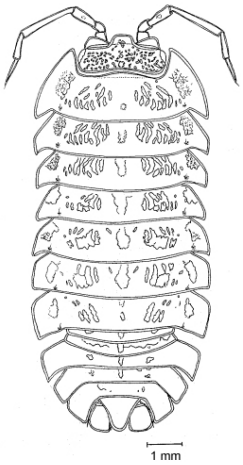
The whole body was cased over with a very strong armour, and the belly III was covered likewise with multitudes of small white shining bristles; the legs, horns, head, and middle parts of its body were bestuck with hairs also, but smaller and darker."

Let us observe an ant under the microscope. Can we make a drawing and write a description, as Hooke has done?





Pieces of text and drawings from Robert Hooke's *Micrographia* (1665)

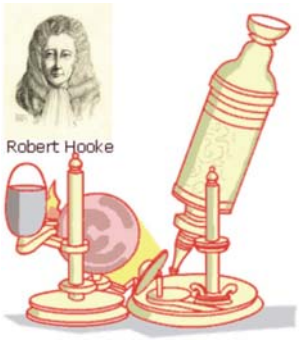


Observation of a terrestrial isopod

*Let us observe an arthropod, which we commonly find in the garden and it is called **terrestrial isopod**, although its common names are "pill-bug" or "pill woodlouse". Its scientific name is **Armadillidium nasatum** and it likes to hide under dark and wet places in the garden. When threatened, it takes the shape of a small marble and rolls down the ground.*

Let us observe it under the microscope. Can we make a drawing and write a description?

*Let us observe **the body parts of a terrestrial isopod** (head, tail, legs ...) under the microscope. Can we make a drawing and write a description?*



Pieces of text and drawings from Robert Hooke's *Micrographia* (1665)

A free observation study

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Let us observe _____

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Let us observe ***the parts*** _____

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