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MICROGRAPHIA

or Some

*Physiological Descriptions
of*

Minute Bodies

Made by

Magnifying Glasses,

with

Observations and Inquiries thereupon

by Robert Hooke

With a Preface by R. T. Gunther

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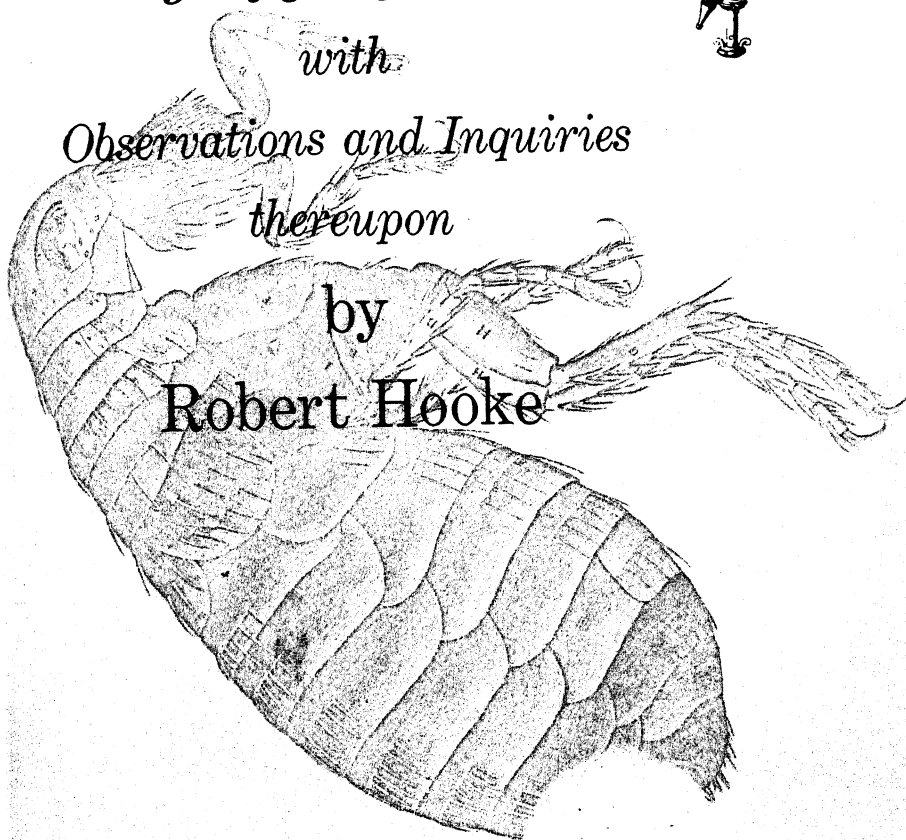
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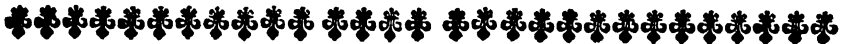


By the Council of the ROYAL SOCIETY
of *London* for Improving of Natural
Knowledge.

Ordered, *That the Book written by Robert Hooke, M.A. Fellow of this Society,*
Entituled, Micrographia, or some Physiological Descriptions of
Minute Bodies, made by Magnifying Glasses, with Observations and
Inquiries thereupon, Be printed by John Martyn, and James Allestry,
Printers to the said Society.

Novem. 23.
1664.

BROUNCKER. *P. R. S.*



MICROGRAPHIA:

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MADE BY

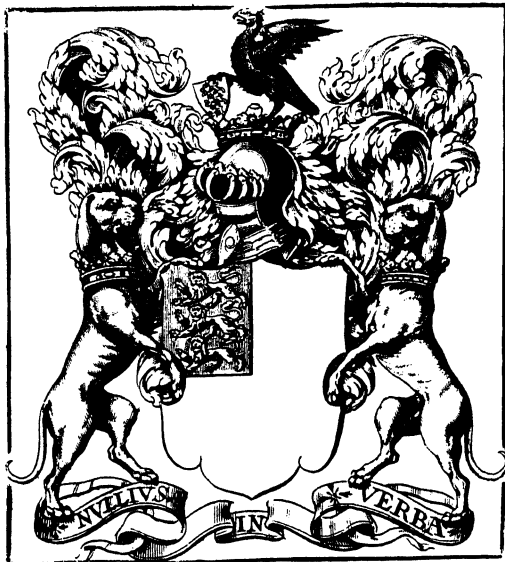
MAGNIFYING GLASSES.

WITH

OBSERVATIONS and INQUIRIES thereupon.

By R. HOOKE, Fellow of the ROYAL SOCIETY.

*Non possis oculo quantum contendere Linceus,
Non tamen idcirco contemnas Lippus inungi. Horat. Ep. lib. i.*



LONDON, Printed by Jo. Martyn, and Ja. Allestry, Printers to the
ROYAL SOCIETY, and are to be sold at their Shop at the Bell in
S. Paul's Church-yard. M DC LX V.



TO THE
KING.

SIR,

I Do here most humbly lay
this *small* Present at Your
Majesties Royal feet. And
though it comes accompa-
ny'd with two *disadvantages*, the *meanness*
of the *Author*, and of the *Subject*; yet
in both I am *incouraged* by the *greatness*
of your *Mercy* and your *Knowledge*.
By the *one* I am taught, that you can
A *forgive*

THE EPISTLE

forgive the most presumptuous Offenders: And by the other, that you will not esteem the least work of Nature, or Art, unworthy your Observation. Amidst the many felicities that have accompani'd your Majesties happy Restauration and Government, it is none of the least considerable, that Philosophy and Experimental Learning have prosper'd under your Royal Patronage. And as the calm prosperity of your Reign has given us the leisure to follow these Studies of quiet and retirement, so it is just, that the Fruits of them should, by way of acknowledgement, be return'd to your Majesty. There are, Sir, several other of your Subjects, of your Royal Society, now busie about Nobler matters: The Improvement of Manufactures and Agriculture, the Increase of Commerce, the Advantage of Navigation: In all which they are assisted by your Majesties Incouragement and Example. Amidst all those
greater

DEDICATORY.

greater Designs, I here presume to bring in that which is more *proportionable* to the *smallness* of my Abilities, and to offer some of the *least* of all *visible things*, to that *Mighty King*, that has *established* an Empire over the best of all *Invisible things* of this **W**orld, the *Minds* of Men.

Your Majesties most humble

and most obedient

Subjeſt and Servant,

ROBERT HOOKE.



TO THE
ROYAL SOCIETY.



FTER my *Address* to our Great Founder and *Patron*, I could not but think my self oblig'd, in consideration of those many *Engagements* you have laid upon me, to offer these my poor *Labours* to this MOST ILLUSTRIOUS ASSEMBLY. YOU have been pleas'd formerly to accept of these rude *Draughts*. I have since added to them some *Descriptions*, and some *Conjectures* of my own. And therefore, together with YOUR *Acceptance*, I must also beg YOUR *pardon*. The Rules YOU have prescrib'd YOUR selves in YOUR Philosophical Progress do seem the best that have ever yet been practis'd. And particularly that of avoiding *Dogmatizing*, and the *espousal* of any *Hypothesis* not sufficiently grounded and confirm'd by *Experiments*. This way seems the most excellent, and may preserve both *Philosophy* and *Natural History* from its former *Corruptions*. In saying which, I may seem to condemn my own Course in this Treatise; in which there may perhaps be some *Expressions*, which may seem more *positive* then YOUR Prescriptions will permit: And though I desire to have them understood only as *Conjectures* and *Quæries* (which YOUR Method does not altogether disallow) yet if even in those I have exceeded, 'tis fit that I should declare, that it was not done by YOUR Directions. For it is most unreasonable, that YOU should undergo the *imputation* of the *faults* of my *Conjectures*, seeing YOU can receive so *small advantage* of reputation by the *sleight Observations* of

YOUR most humble and
most faithful Servant

ROBERT HOOKE.



THE P R E F A C E.

I*t is the great prerogative of Mankind above other Creatures, that we are not only able to behold the works of Nature, or barely to sustain our lives by them, but we have also the power of considering, comparing, altering, assisting, and improving them to various uses. And as this is the peculiar privilege of humane Nature in general, so is it capable of being so far advanced by the helps of Art, and Experience, as to make some Men excel others in their Observations, and Deductions, almost as much as they do Beasts. By the addition of such artificial Instruments and methods, there may be, in some manner, a reparation made for the mischiefs, and imperfection, mankind has drawn upon it self, by negligence, and intemperance, and a wilful and superstitious deserting the Prescripts and Rules of Nature, whereby every man, both from a deriv'd corruption, innate and born with him, and from his breeding and converse with men, is very subject to slip into all sorts of errors.*

The only way which now remains for us to recover some degree of those former perfections, seems to be, by rectifying the operations of the Sense, the Memory, and Reason, since upon the evidence, the strength, the integrity, and the right correspondence of all these, all the light, by which our actions are to be guided, is to be renewed, and all our command over things is to be established.

It is therefore most worthy of our consideration, to recollect their several defects, that so we may the better understand how to supply them, and by what assistances we may enlarge their power, and secure them in performing their particular duties.

As for the actions of our Senses, we cannot but observe them to be in

The P R E F A C E.

many particulars much outdone by those of other Creatures, and when at best, to be far short of the perfection they seem capable of : And these infirmities of the Senses arise from a double cause, either from the disproportion of the Object to the Organ, whereby an infinite number of things can never enter into them, or else from error in the Perception, that many things, which come within their reach, are not received in a right manner.

The like frailties are to be found in the Memory ; we often let many things slip away from us, which deserve to be retain'd ; and of those which we treasure up, a great part is either frivolous or false ; and if good, and substantial, either in tract of time obliterated, or at best so overwhelmed and buried under more frothy notions, that when there is need of them, they are in vain sought for.

The two main foundations being so deceivable, it is no wonder, that all the succeeding works which we build upon them, of arguing, concluding, defining, judging, and all the other degrees of Reason, are lyable to the same imperfection, being, at best, either vain, or uncertain : So that the errors of the understanding are answerable to the two other, being defective both in the quantity and goodness of its knowledge ; for the limits, to which our thoughts are confin'd, are small in respect of the vast extent of Nature it self ; some parts of it are too large to be comprehended, and some too little to be perceived. And from thence it must follow, that not having a full sensation of the Object, we must be very lame and imperfect in our conceptions about it, and in all the propositions which we build upon it ; hence we often take the shadow of things for the substance, small appearances for good similitudes, similitudes for definitions ; and even many of those, which we think to be the most solid definitions, are rather expressions of our own misguided apprehensions than of the true nature of the things themselves.

The effects of these imperfections are manifested in different ways, according to the temper and disposition of the several minds of men, some they incline to gross ignorance and stupidity, and others to a presumptuous imposing on other mens Opinions, and a confident dogmatizing on matters, whereof there is no assurance to be given.

Thus