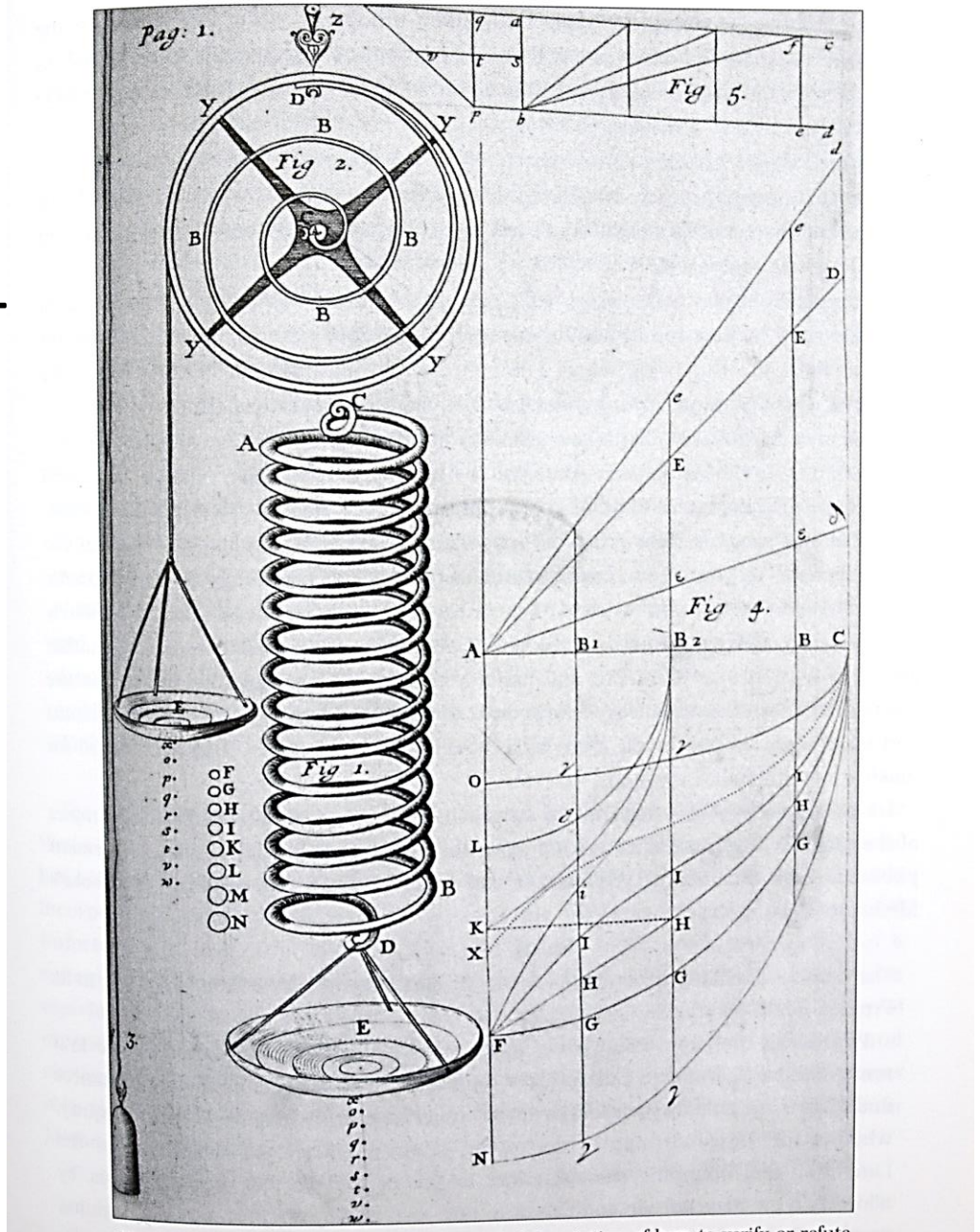
Robert Hooke - man of mystery

Mike Quinton

7 January 2021

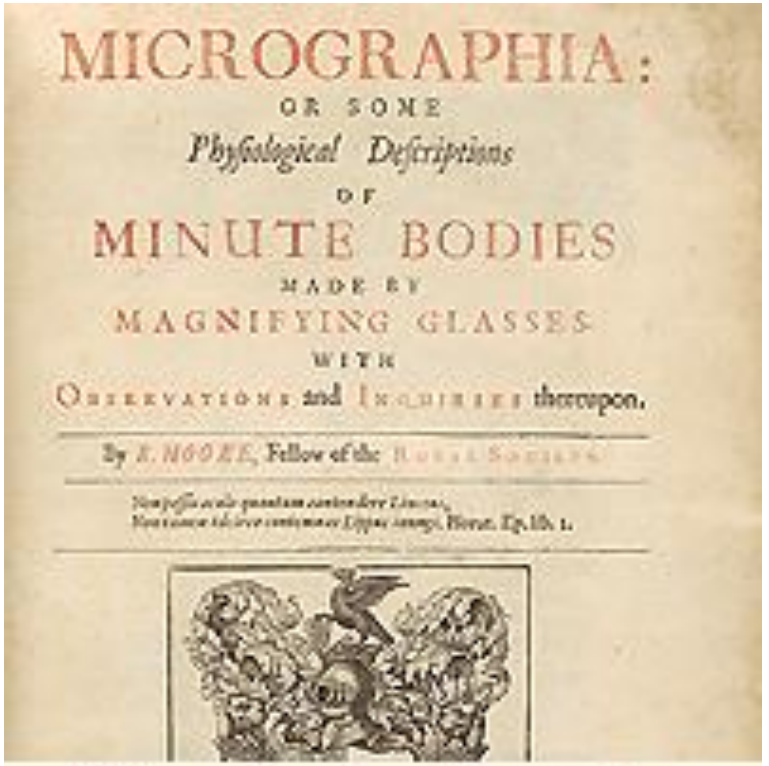


21. Hooke's diagram accompanying his verbal description of how to verify or refute what is now known as 'Hooke's Law of Elasticity' – the extension of a spring is

Robert Hooke – man of mystery

We don't know what he looked like or where he was buried.

We do know what he did!



Hooke's Books

The Mysterious Dr Hooke's Appearance

Unveiled at the IOP

Mike Quinton
7 January 2021

37 Caledonian Road

REMS at 37 Caledonian Road

23 January 2020

REMS at 80 Portland Place

9 January 2014

Rosalind Franklin Room

Robert Hooke in Westminster Abbey

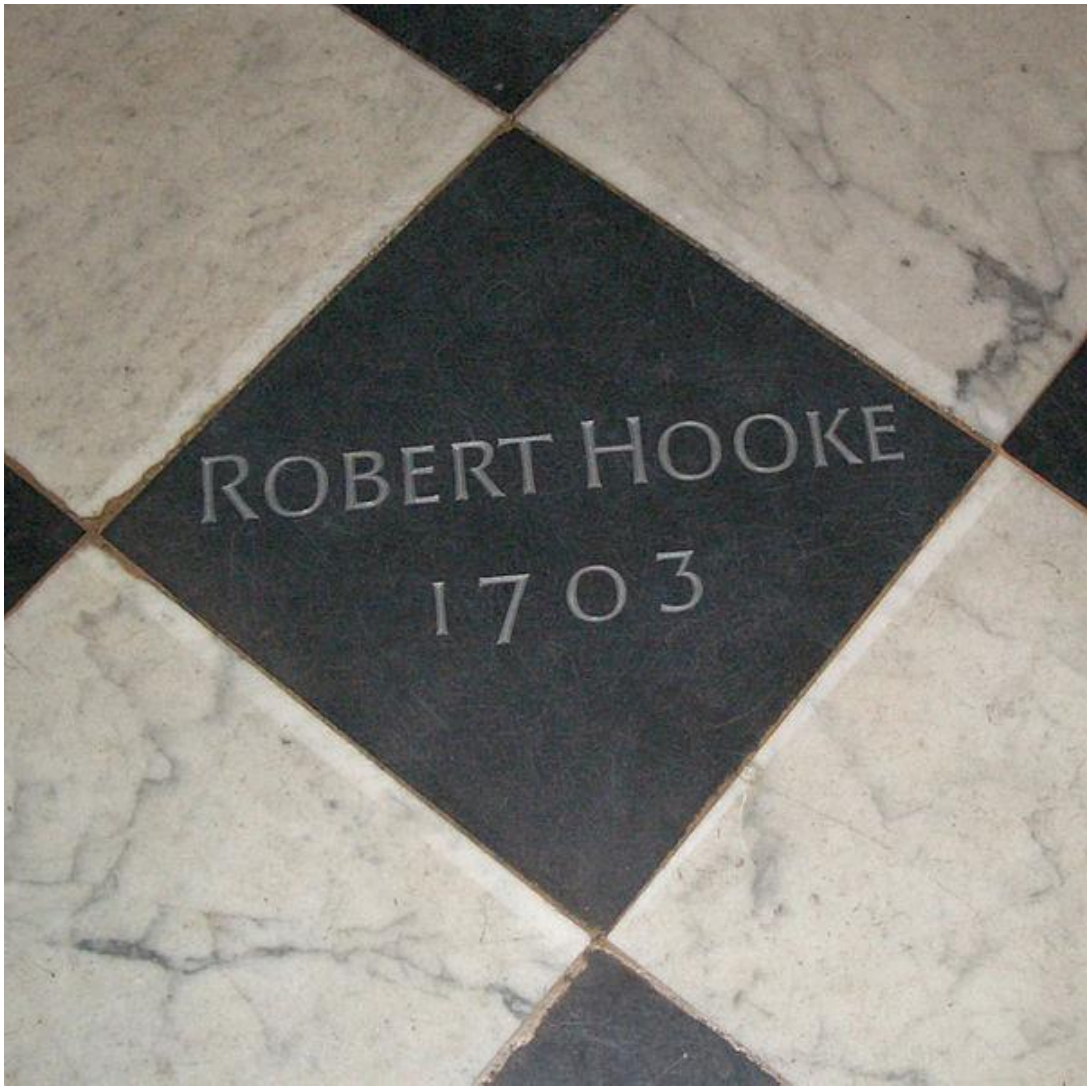


Photo by Rita Greer

REMS At Home 12 January 2012

IOP | Institute of Physics
London and South East Branch **Retired Members Section**

AT HOME – Science in Late 17th Century

THURSDAY 12 January 2012

This meeting has been organised by George Freeman

PROGRAMME

Chairman John Belling

10.30 Registration and coffee

11.00 Welcome

11.05 Sir Arnold Wolfendale FRS,14th Astronomer Royal, Past President IOP
Robert Hooke and the scientific environment

11.30 Felicity Henderson -
A College for the Promoting of Physico-Mathematical Experimental Learning: Early days of the Royal Society

12.10 Rita Greer
Hooke's portrait and unveiling (by Sir Arnold Wolfendale)

12.40 LUNCH

14.15 Rebekah Higgitt -
The role of the Astronomer Royal in the early days of the Royal Observatory, Greenwich

14.55 Michael Cooper -
Scientific and Civic Measurements: Hooke, Boyle and the Citizens of London.

15.35 Allan Chapman (TBC)
"Artificial Organs that strengthen the natural" (R. Hooke) - the impact of instrumentation

16.15 Tea and close

Institute of Physics, 76 Portland Place, W1B 1NT. Nearest underground stations are Oxford Circus and Regents Park.

This meeting is open to visitors. Please contact John Belling, john.a.belling.secrems@gmail.com, 07986 379935, 42 Cunningham Park, Harrow, Middx, HA1 4QJ, if you wish to attend.

Costs are £29.50 or £6 without lunch. There will be no reimbursement for cancellations after 9 January 2012.

www.johnabelling.webspace.virginmedia.com

Lunch menu as selected by members' vote:
Main dish: choose from (a) char-grilled chicken breast, sweet potato puree & tarragon cream;
(b) seared Scottish salmon with spiced tomato lentils; (c) creamy mushroom stroganoff & rice
Dessert: choose from (i) apple & blackberry crumble with cream; (ii) fresh fruit salad

IOP | Institute of Physics
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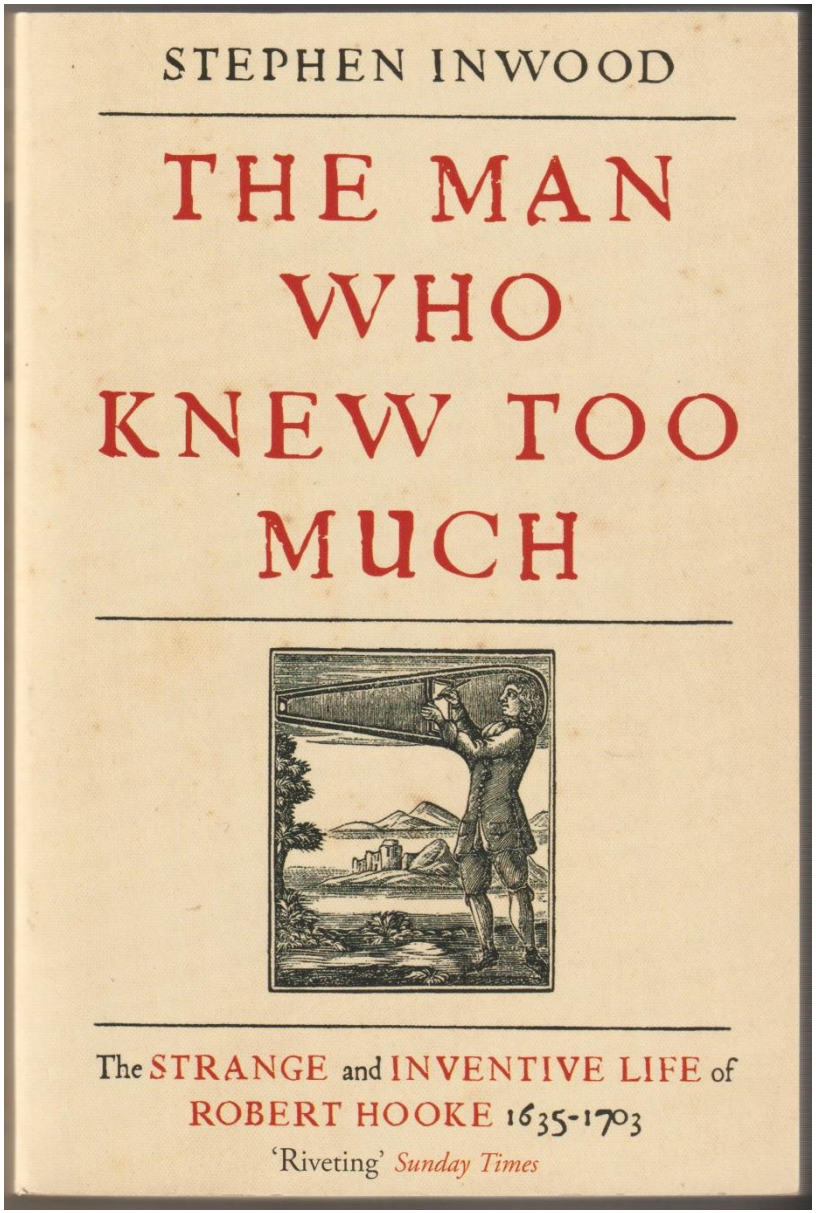
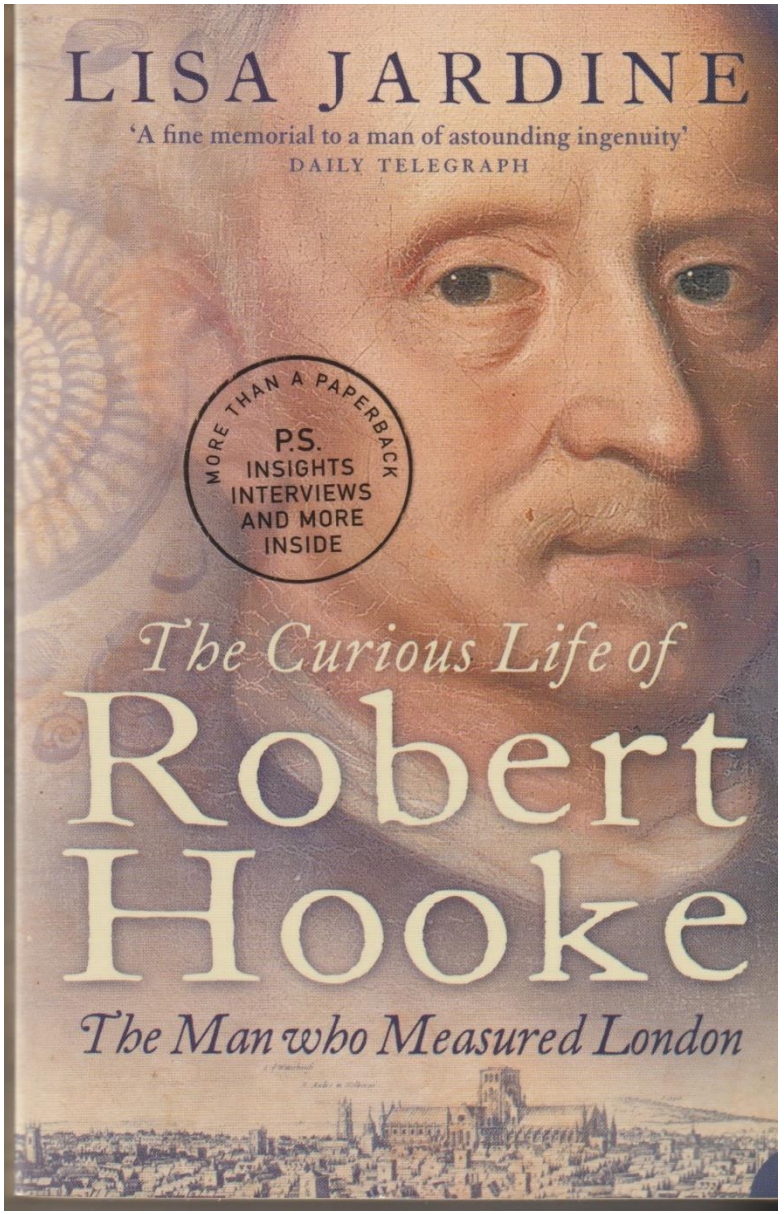
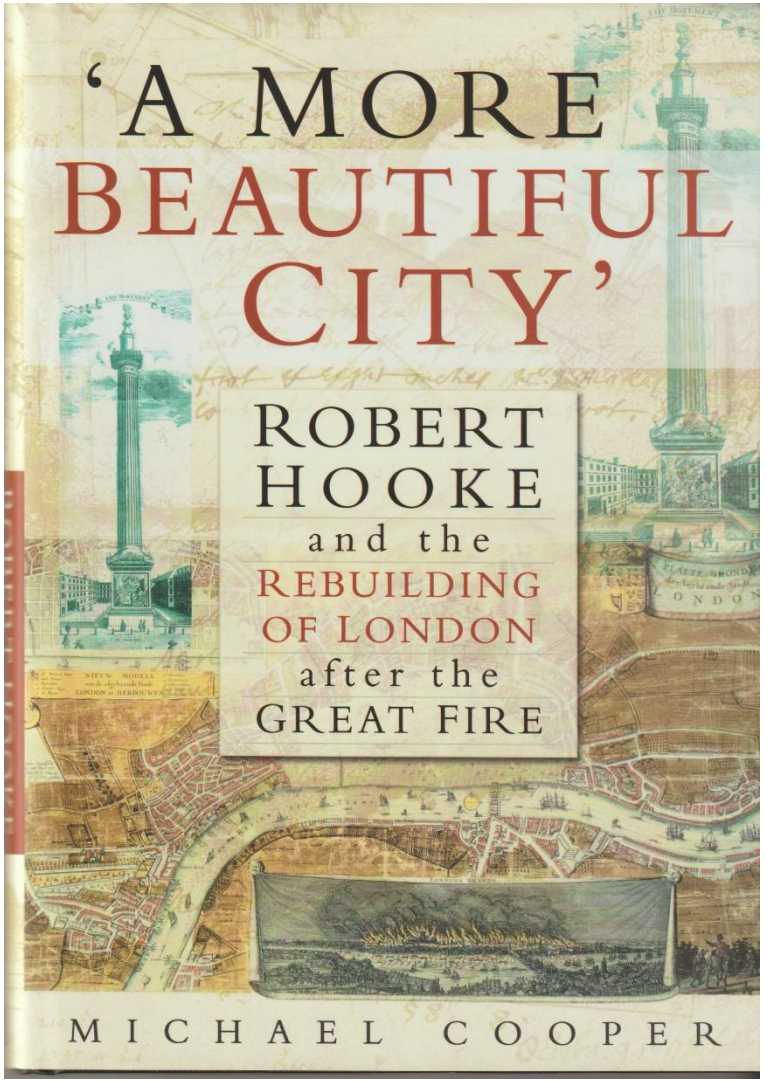
Hooke Books

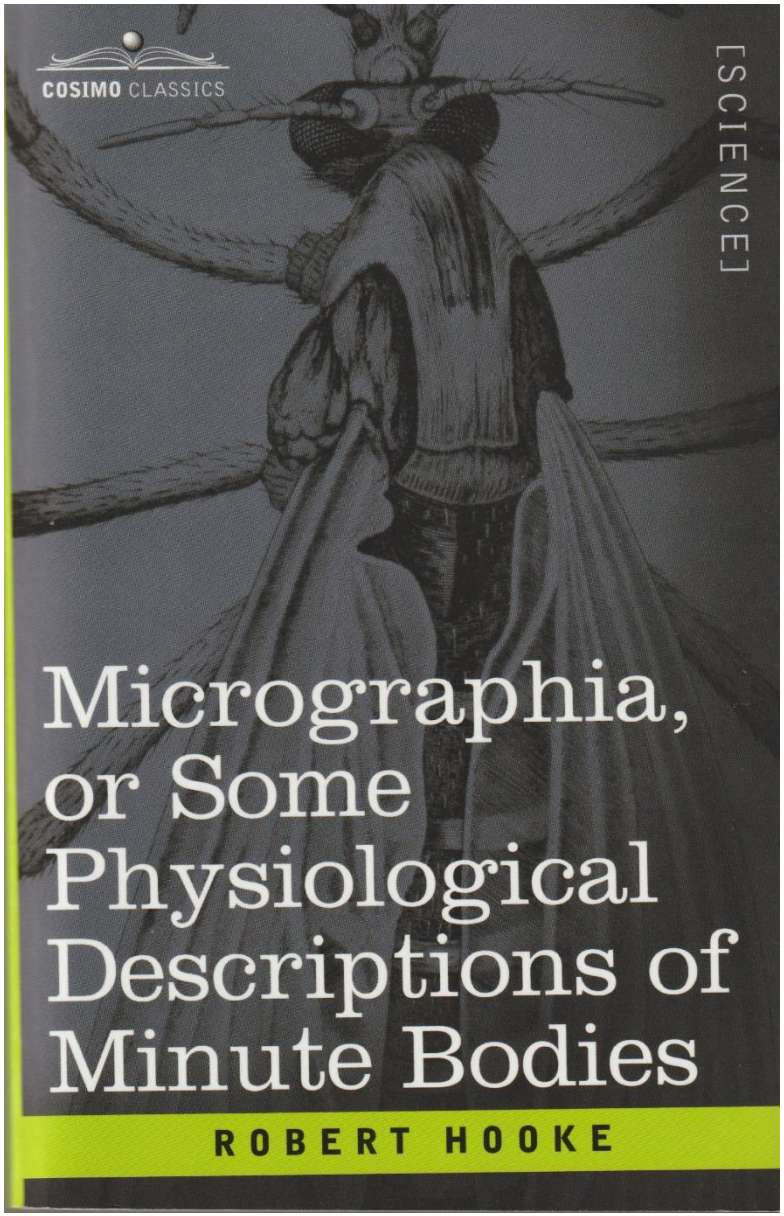

STEPHEN INWOOD
THE MAN WHO KNEW TOO MUCH
The STRANGE and INVENTIVE LIFE of ROBERT HOOKE 1635-1703
'Riveting' Sunday Times


LISA JARDINE
'A fine memorial to a man of astounding ingenuity'
DAILY TELEGRAPH
MORE THAN A PAPERBACK
P.S.
INSIGHTS
INTERVIEWS
AND MORE
INSIDE
The Curious Life of
Robert Hooke
The Man who Measured London

In January 2012 Michael Cooper spoke about Hooke, Boyle and the Citizens of London



Reprint of Hooke's book of 1665



DEDICATORY.

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

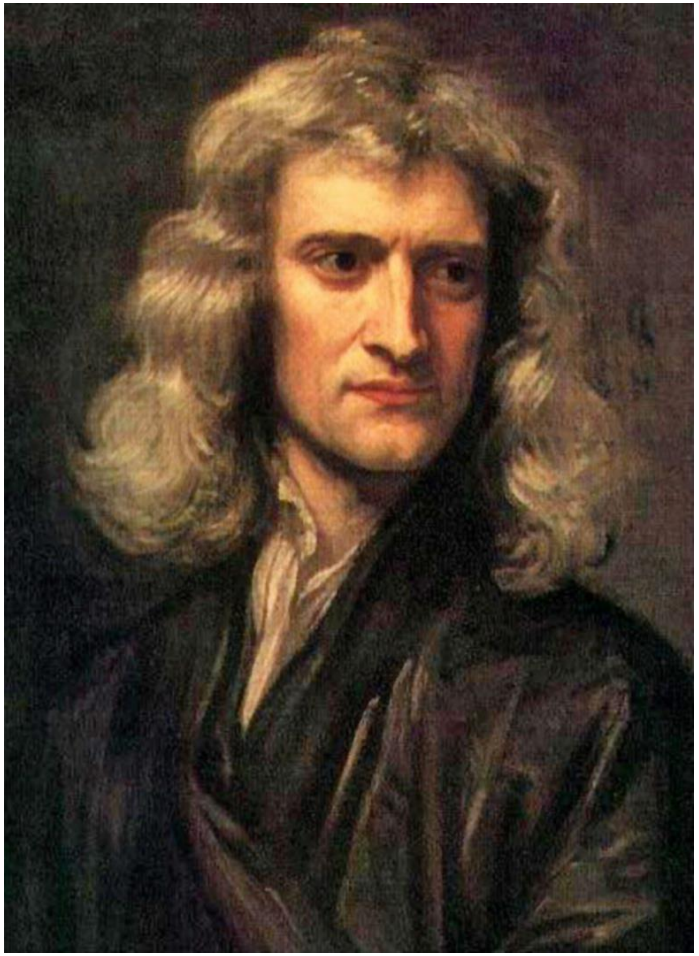
Your Majeſties moſt humble

and moſt obedient

Subject and Servant,

ROBERT HOOKE.

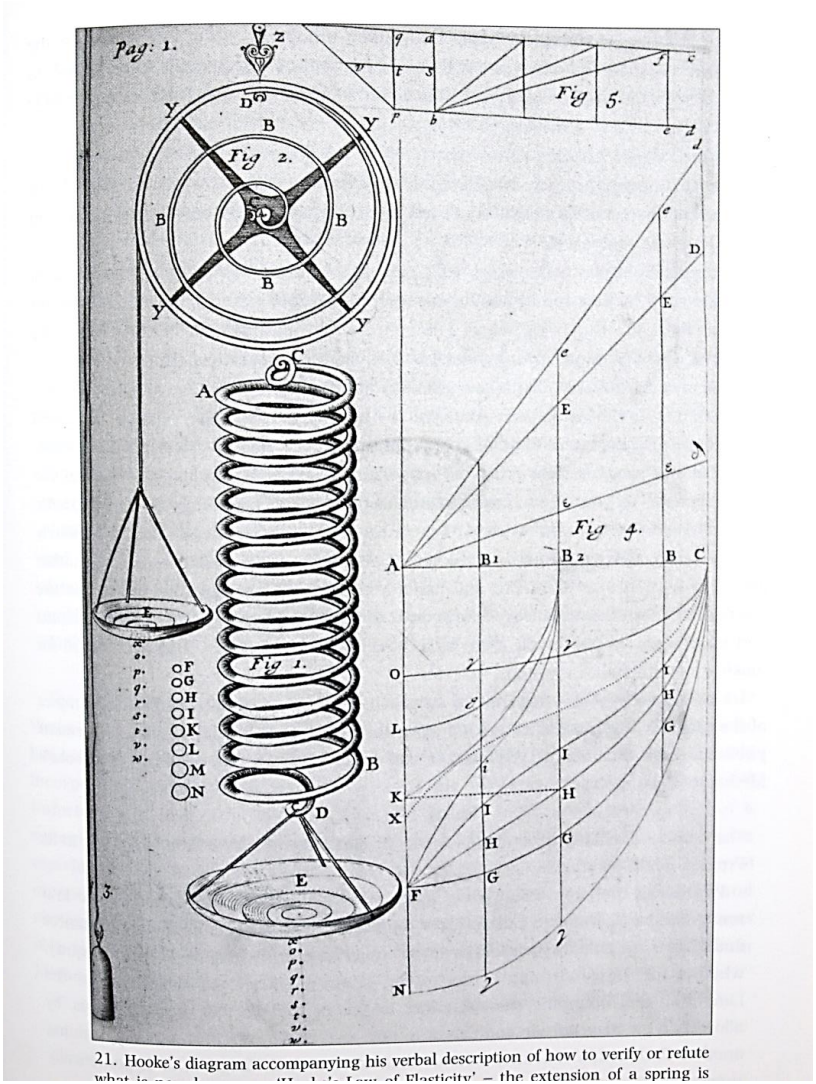
Does anybody know who these gentlemen are?



Newton 1643- 1727

Wren 1632 - 1723

Hooke's Law published as ceiiinosssttuv



21. Hooke's diagram accompanying his verbal description of how to verify or refute what is [illegible] Law of Elasticity' – the extension of a spring is

Robert Hooke showing Charles II his pocket watch

St James's Park 1675 with Christopher Wren Painting by Rita Greer

Hooke's Law published as

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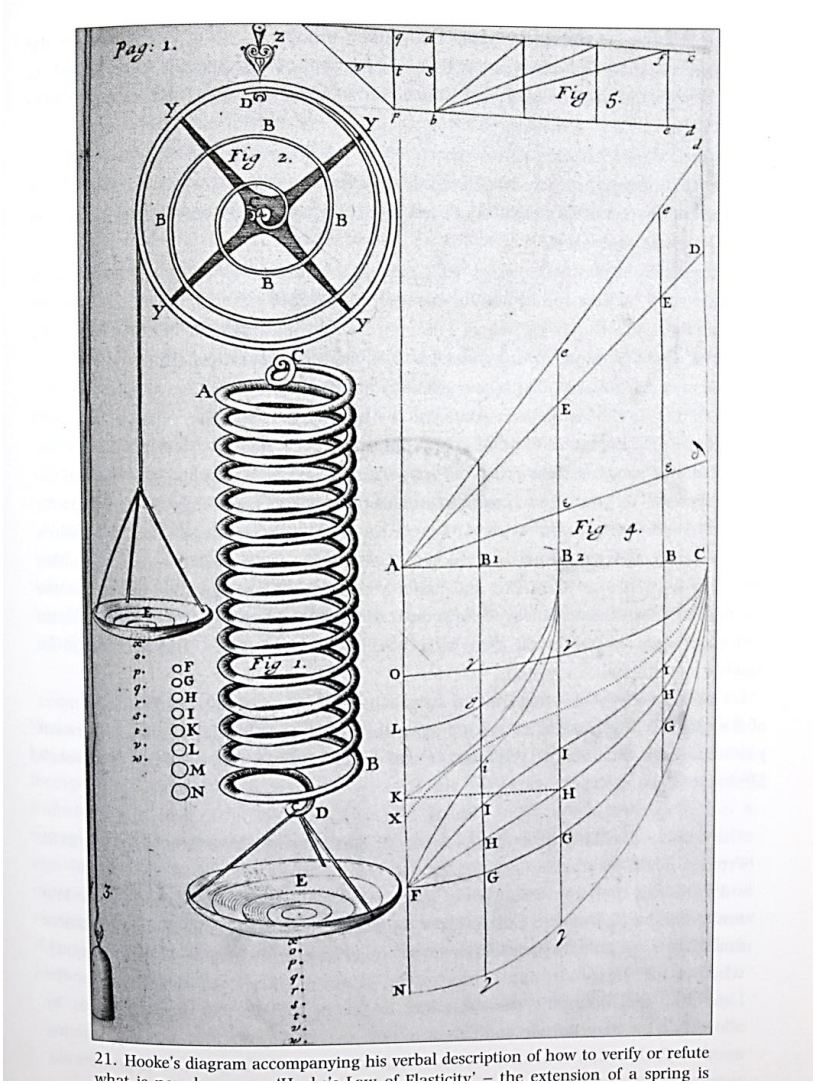

21. Hooke's diagram accompanying his verbal description of how to verify or refute what is now known as Hooke's Law of Elasticity' – the extension of a spring is

Hooke's Law published as

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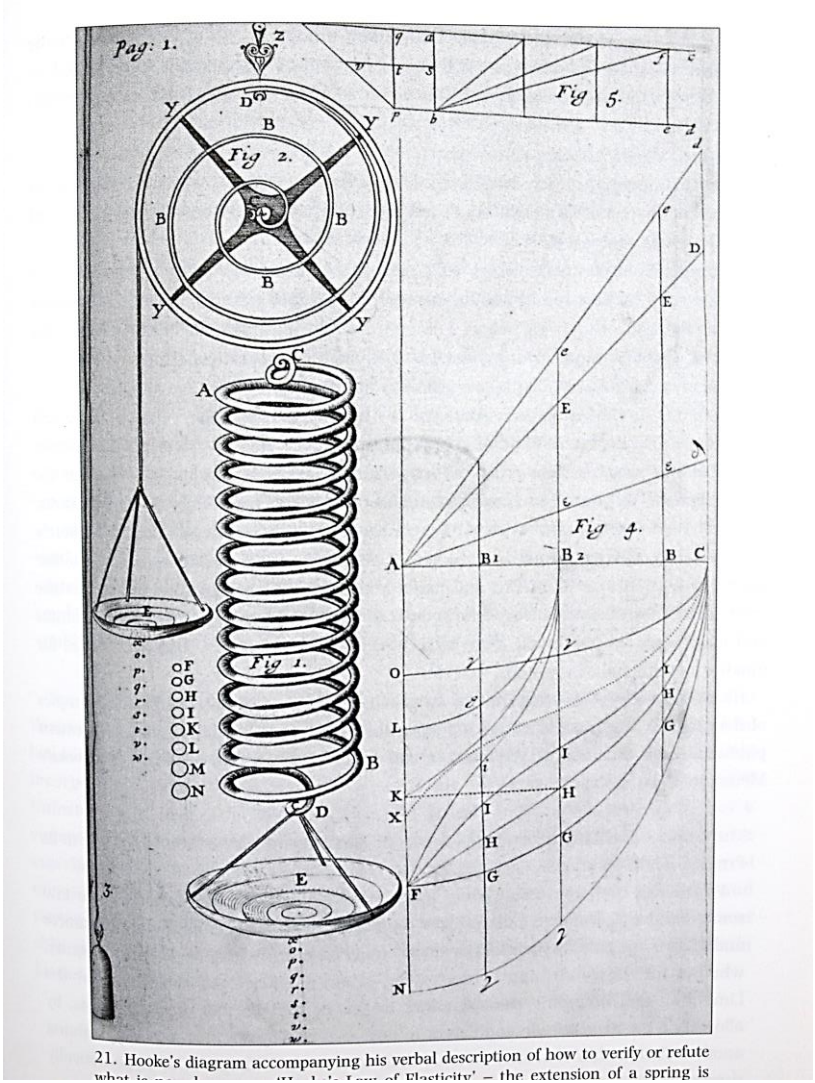
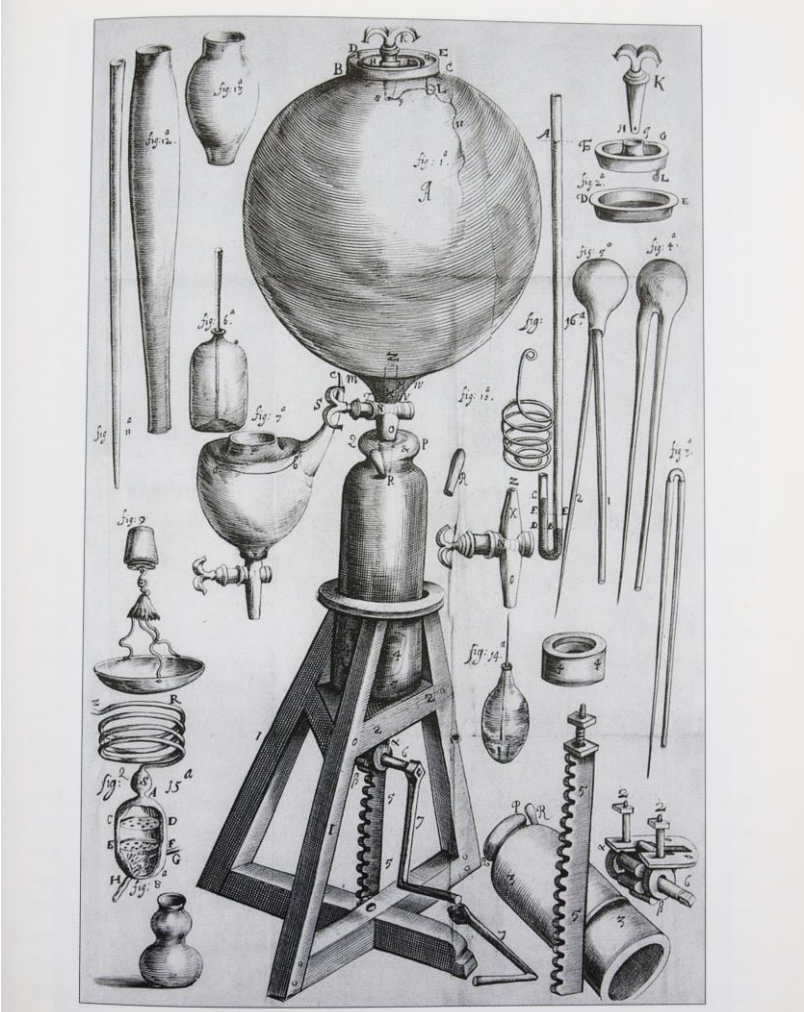


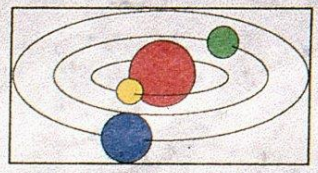
21. Hooke's diagram accompanying his verbal description of how to verify or refute

Apparatus built by Hooke for Robert Boyle



10. Boyle's air-pump and associated apparatus, designed and made by Hooke and used for the experiments published in *New Experiments Physico-Mechanicall, Touching the Spring of the Air, and its Effects*. The radius of the roughly spherical glass chamber was

Scientific Method



- Observation
- Hypothesis
- Test by experiment/further observation
- Theory

Hooke fitting a glass globe to his air pump for Boyle's experiments

Laboratory in Mr Crosse's apothecary's shop in the High Street, Oxford, ~ 1659
Painting by Rita Greer

Robert Boyle

We know what he looked like thanks to this portrait by

Johann Keresboom

Robert Hooke?




Description by his friend John Aubrey, archaeologist:

"Middling stature, something crooked, pale faced, head lardge, eie full and popping.
He has a delicate head of haire, browne and of modest curle."

Description by his colleague and protégé, Richard Waller, physician, when Hooke's health was ruined:

"Pale and thin-skin and bone; eyes grey with a sharp look; forehead large.
He went stooping and very fast."

Carlton House Terrace
the present home of the Royal Society

Robert Hooke visualised by Rachel Chapman 2003

A portrait by Mary Beale labelled “John Ray”

Bethlem Hospital (Bedlam), Moorfields

A portrait by Mary Beale
labelled wrongly
“John Ray”

but now believed to be of Jan Baptist van Helmont, Flemish chemist.

Portrait of a mathematician

by Mary Beale

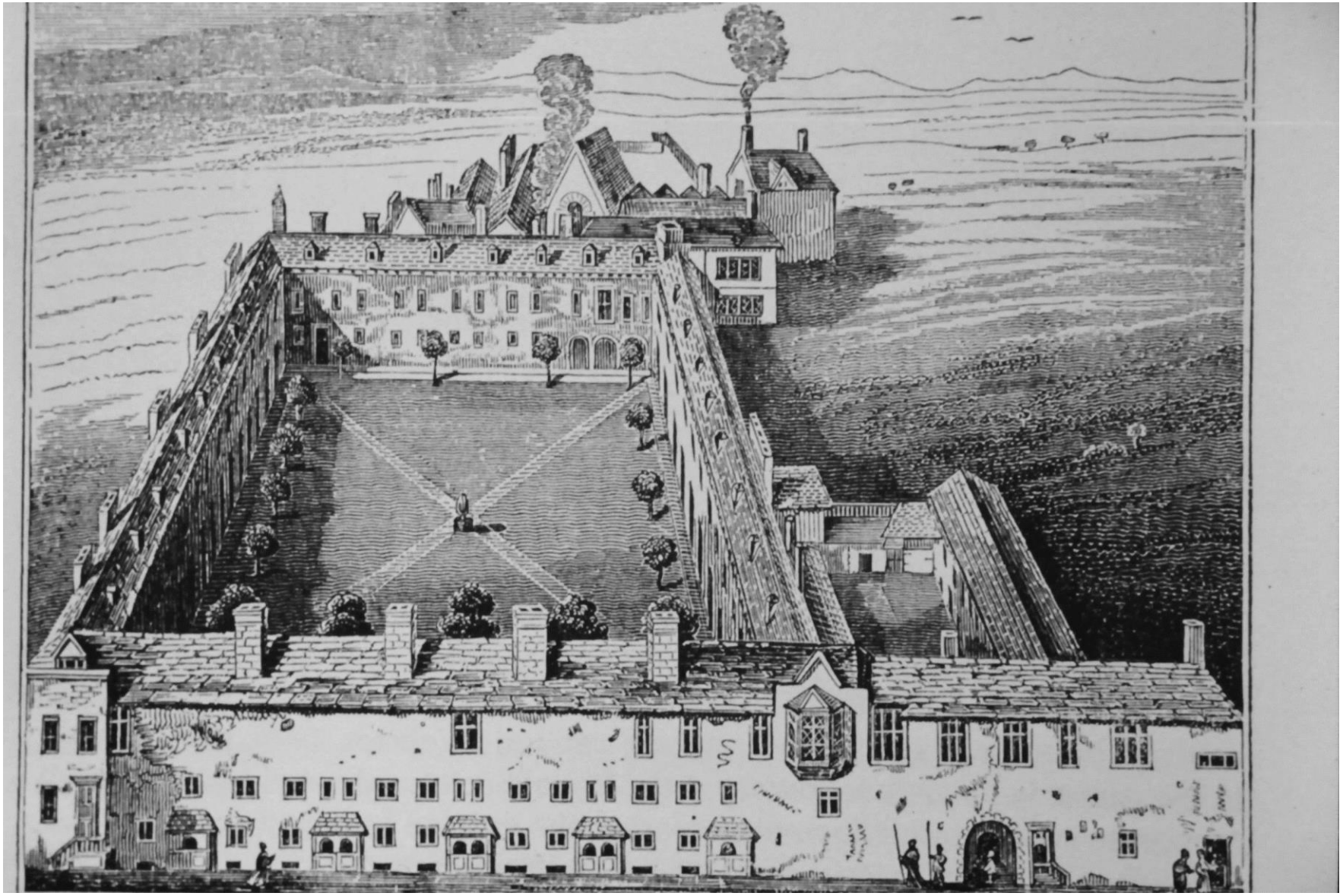
St Helen's Church Bishopsgate

Rita Greer's drawing of Robert Hooke 2006

2008 portrait by Rita Greer

Robin Wilson, Gresham Professor of Mathematics, dressed as Henry Briggs in Staple Inn Hall, Gresham College, together with the artist Rita Greer

Gresham College, Bishopsgate



Rita Greer about to reveal Robert Hooke

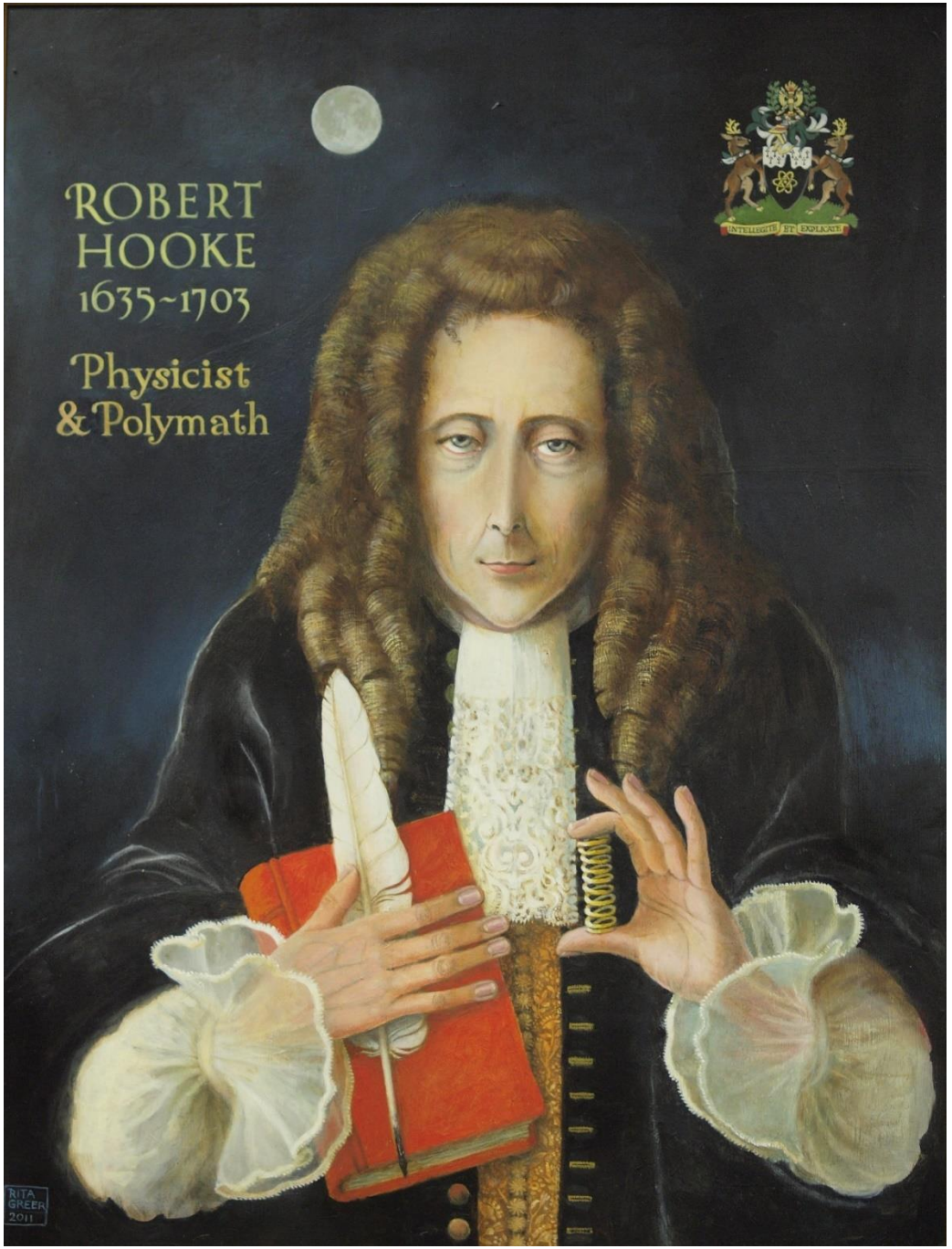
Unveiling of a new portrait January 2012

Unveiling of a new portrait January 2012

Robert Hooke unveiled in the Rutherford Centre

Speakers (L to R): Rebekah Higgitt; Felicity Henderson;
Sir Arnold Wolfendale; Rita Greer and her husband;
Allan Chapman; Michael Cooper

Hooke and Spring



Robert Hooke's Occupations

Assistant to Robert Boyle 1656 (or 7) to 1662 (or 4)

Curator of Experiments for the Royal Society 1662 (confirmed in 1665) to 1670 (or 71)

Gresham Professor of Geometry 1665 to 1703

Secretary to the Royal Society 1677 to 1683

Surveyor to the City of London 1667 to 1674

The Royal Society was founded in 1660. Hooke was elected FRS in 1663

Robert Hooke in his rooms at Gresham College

By Rita Greer 2006

Robert Hooke's Interests

Science:

Microscopy, Biology, Physics, Chemistry, Astronomy, Meteorology

Engineering: equipment and instruments

Inventing: iris diaphragm, universal joint, balance wheel, respirator, ……

Ideas: microdot, syringe, synthetic silks

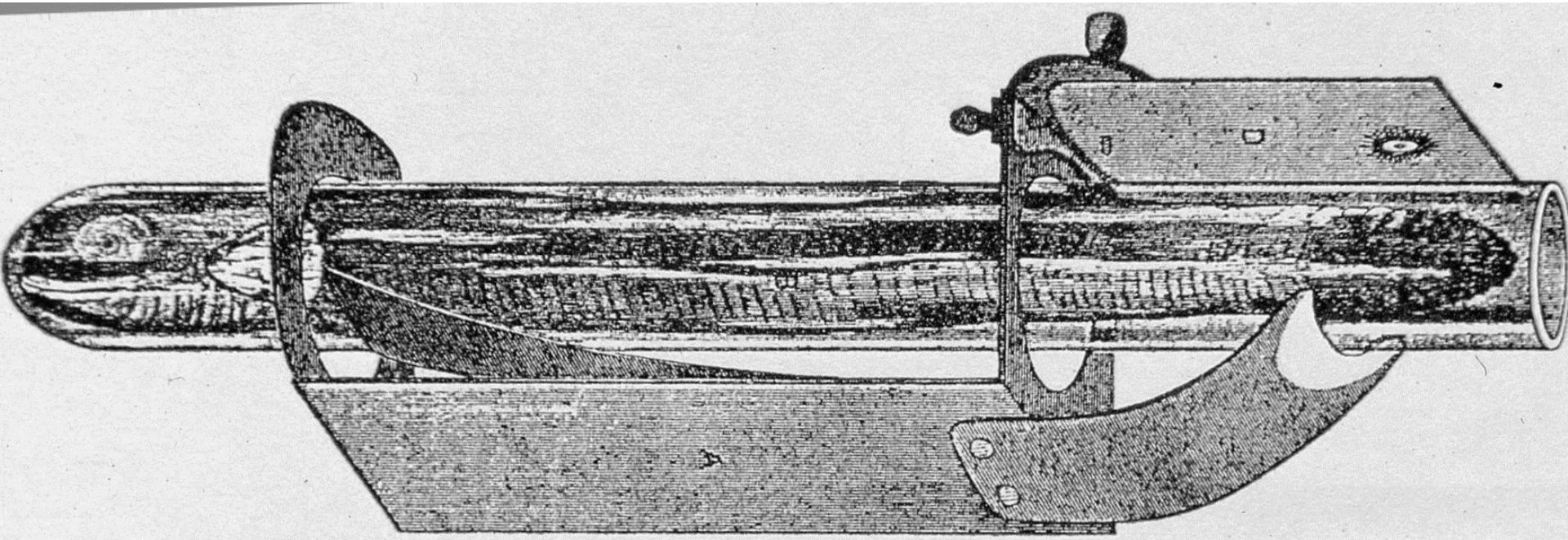
Blood Transfusion

Antonie Philips van Leeuwenhoek
1632 - 1723

Portrait by Jan Verkolje

Memorial in the Old Church, Delft

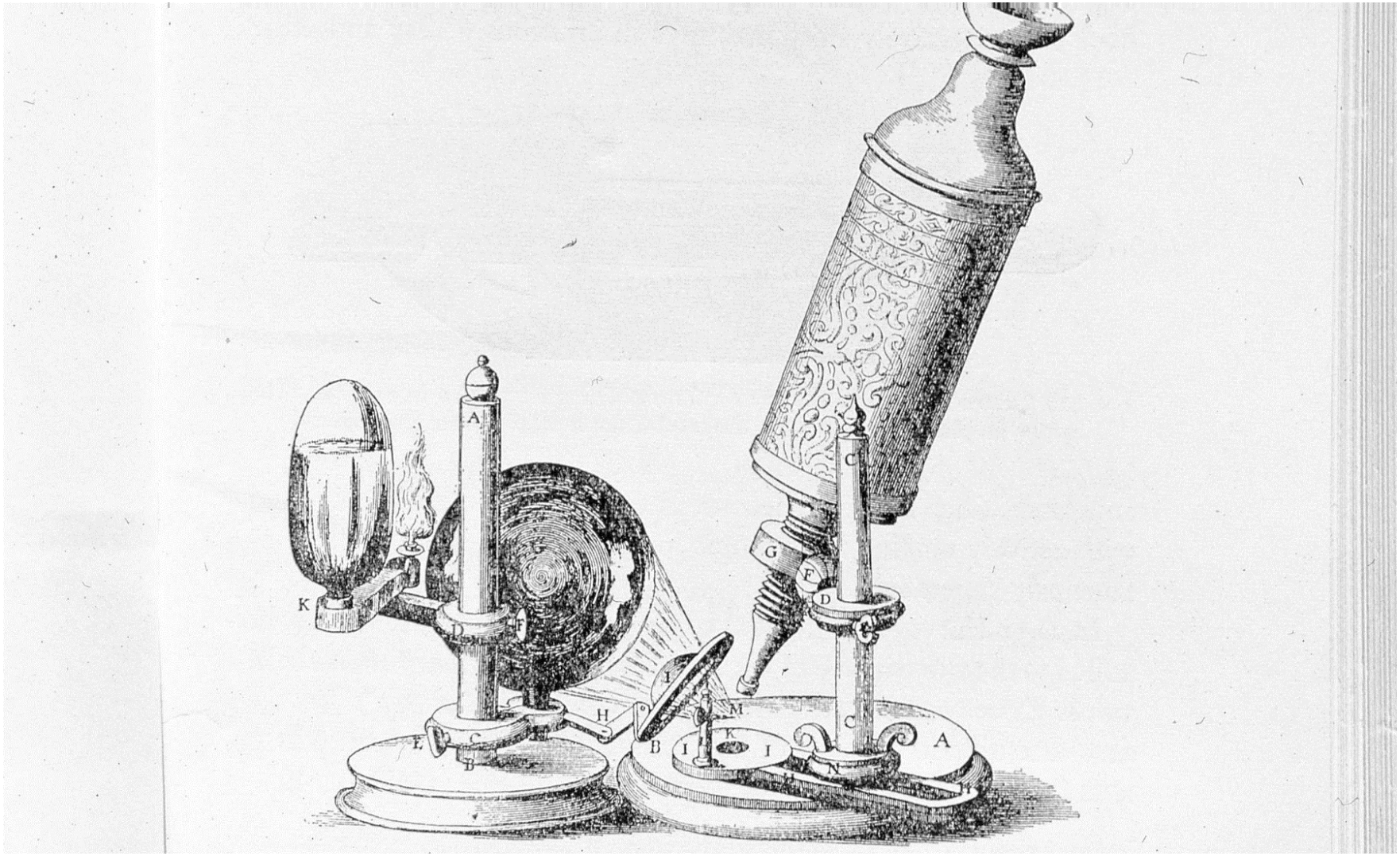
Leewenhoek's Microscope



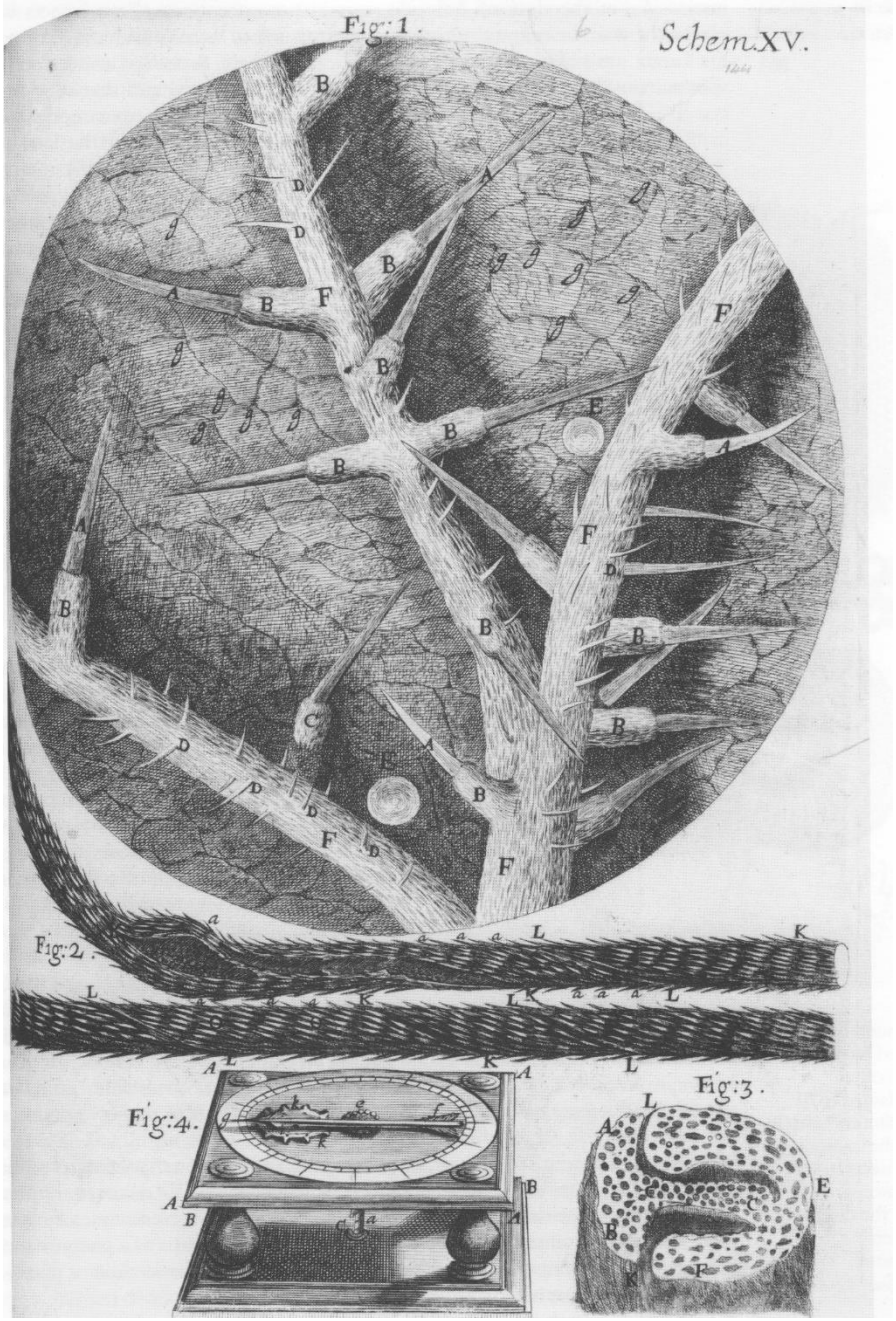
G. 118. Leeuwenhoek's microscope set for examining circulation in eel's tail. screw on plate *D* controls the distance of the lens in it from the object.

30x eyepiece

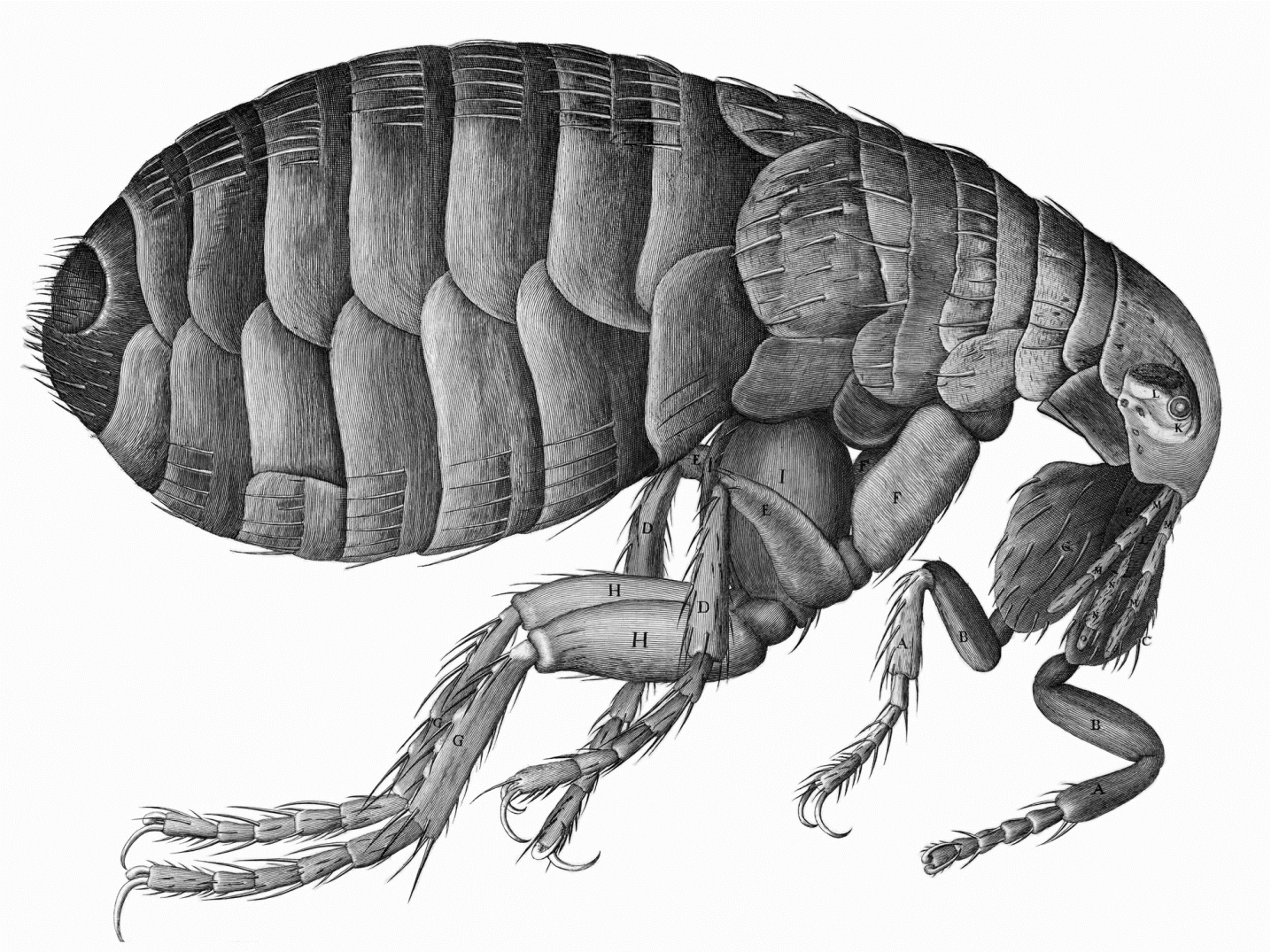
Hooke's Compound Microscope



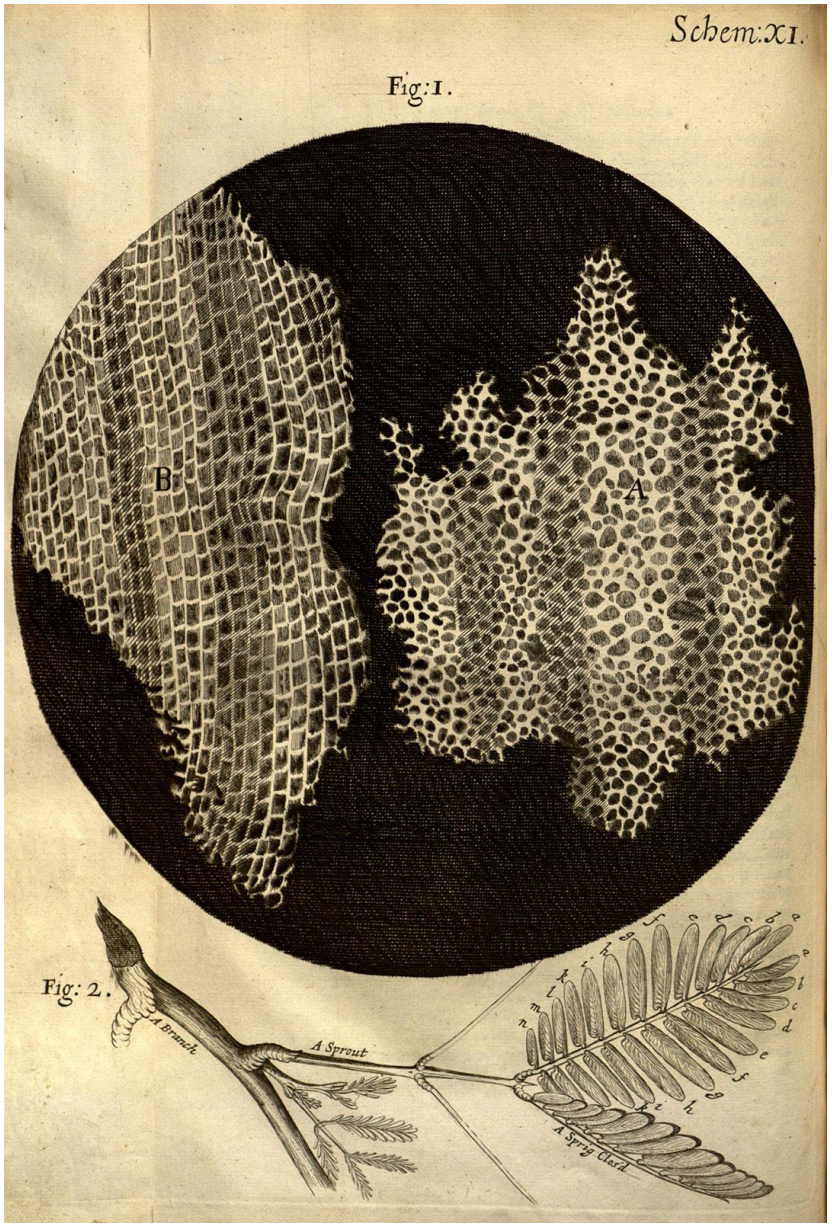
Stinging Nettle



Flea



Longitudinal (B) and Cross-sections (A) of Cork



Observations on Cork

Obſerv. XVIII. *Of the* Schematiſme *or* Texture *of* Cork, *and of the Cells and Pores of ſome other ſuch frothy Bodies.*

I Took a good clear piece of Cork, and with a Pen-knife ſharpen'd as keen as a Razor, I cut a piece of it off, and thereby left the ſurface of it exceeding ſmooth, then examining it very diligently with a *Microſcope*, me thought I could perceive it to appear a little porous; but I could not ſo plainly diſtinguiſh them, as to be ſure that they were pores, much leſs what Figure they were of: But judging from the lightneſs and yielding quality of the Cork, that certainly the texture could not be ſo curious,

curious, but that poſſibly, if I could uſe ſome further diligence, I might find it to be diſcernable with a *Microſcope*, I with the ſame ſharp Pen-knife, cut off from the former ſmooth ſurface an exceeding thin piece of it, and placing it on a black object Plate, becauſe it was it ſelf a white body, and caſting the light on it with a deep *plano-convex Glaſs*, I could exceeding plainly perceive it to be all perforated and porous, much like a Honey-comb, but that the pores of it were not regular; yet it was not unlike a Honey-comb in theſe particulars.

Firſt, in that it had a very little ſolid ſubſtance, in compariſon of the empty cavity that was contain'd between, as does more manifeſtly appear by the Figure A and B of the XI. *Scheme*, for the *Interſtitia*, or walls (as I may ſo call them) or partitions of thoſe pores were neer as thin in proportion to their pores, as thoſe thin films of Wax in a Honey-comb (which encloſe and conſtitute the *ſexangular cells*) are to theirs.

Next, in that theſe pores, or cells, were not very deep, but conſiſted of a great many little Boxes, ſeparated out of one continued long pore, by certain *Diaphragms*, as is viſible by the Figure B, which repreſents a light of thoſe pores ſplit the long-ways.

Estimate of the size of cells and the transport of liquids in plants

true reasons of things by similitudes and comparisons.

But, to return to our Observation. I told several lines of these pores, and found that there were usually about threescore of these small Cells placed end-ways in the eighteenth part of an Inch in length, whence I concluded there must be neer eleven hundred of them, or somewhat more then a thousand in the length of an Inch, and therefore in a square Inch above a Million, or 1166400. and in a Cubick Inch, above twelve hundred Millions, or 1259712000. a thing almost incredible, did not our *Microscope* assure us of it by ocular demonstration; nay, did it not discover to us the pores of a body, which were they *diaphragm'd*, like those of Cork, would afford us in one Cubick Inch, more then ten times as many little Cells, as is evident in several charr'd Vegetables; so prodigiously curious are the works of Nature, that even these conspicuous pores of bodies, which seem to be the channels or pipes through which the *Succus nutritius*, or natural juices of Vegetables are convey'd, and seem to correspond to the veins, arteries and other Vessels in sensible creatures, that these pores I say, which seem to be the Vessels of nutrition to the vastest body in the World, are yet so exceeding small, that the *Atoms* which *Epicurus* fancy'd would go neer to prove too bigg to enter them, much more to constitute a fluid body in them. And how infinitely smaller then must be the Vessels of a Mite, or the pores of one of those little Vegetables I have discovered to grow on the back-side of a Rose-leaf, and shall anon more fully describe, whose bulk is many millions of times less then the bulk of the small shrub it grows on; and even that shrub, many millions of times less in bulk then several trees (that have heretofore grown in *England*, and are this day flourishing in other hotter Climates, as we are very credibly inform'd) if at least the pores of this small Vegetable should keep any such proportion to the body of it, as we have found these pores

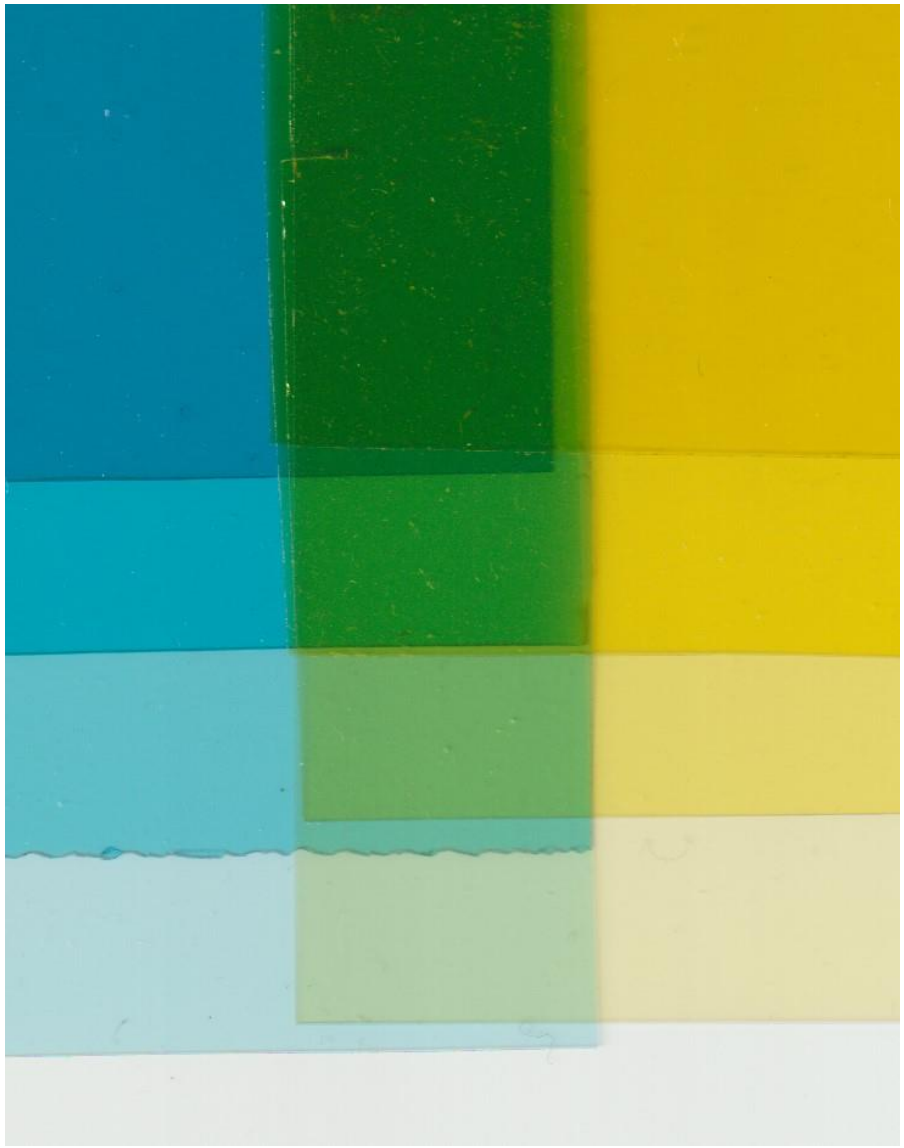
of

Colour of Light

Photo by Nazir-al Molk

Yellow + Cyan

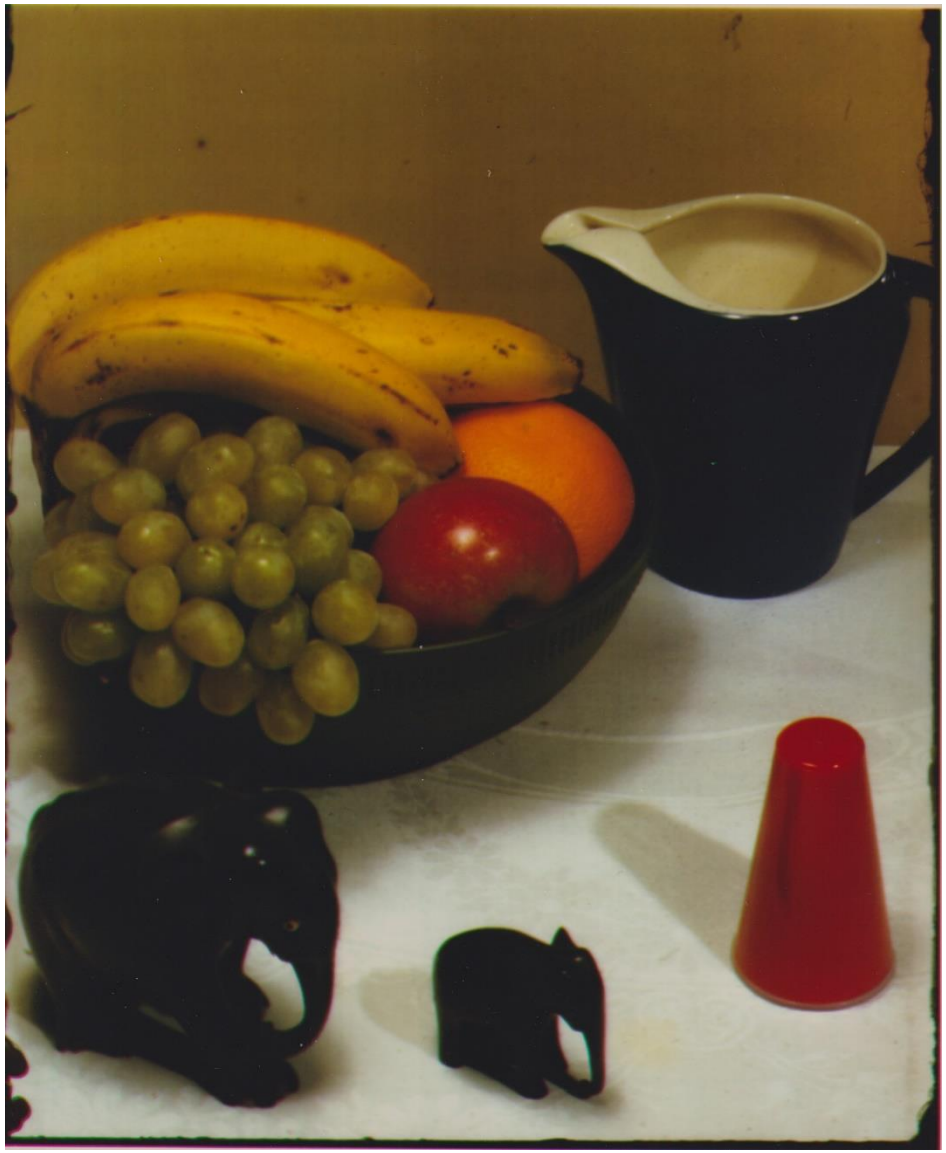
Cyan + Yellow wedges



Add Magenta to Yellow + Cyan

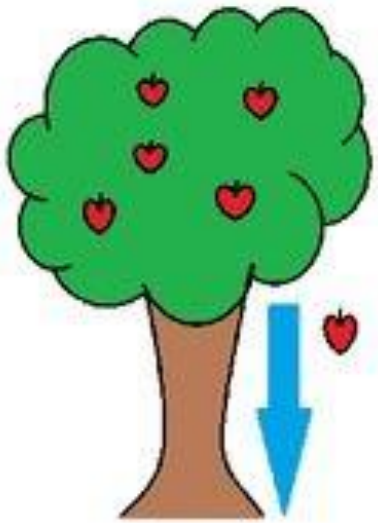
Cyan + Magenta +Yellow Images

CMY Images registered properly

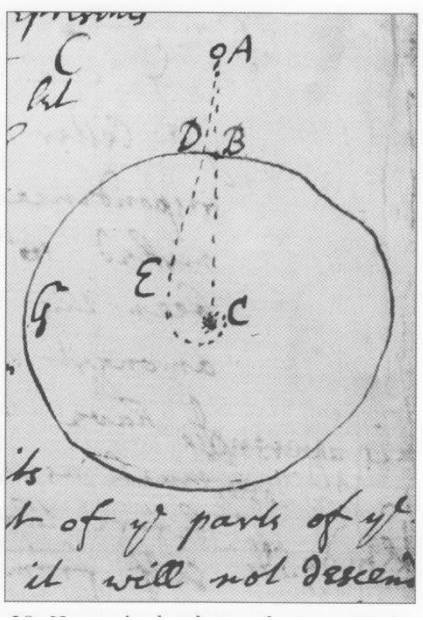


Gravity

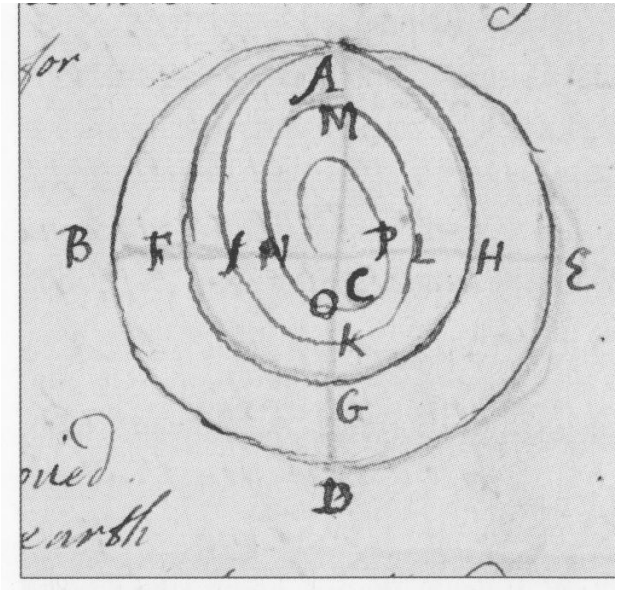
Gravity is the force that pulls objects towards each other



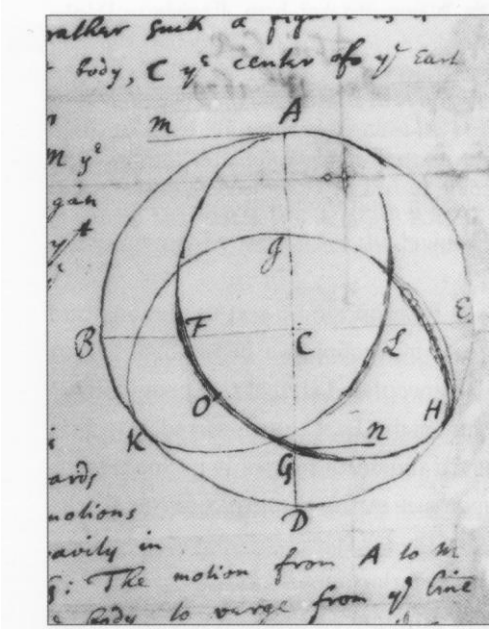
Trajectories of falling objects



Newton 1



Hooke



Newton 2

The Coffee Shop

Robert Hooke's interests

Conversation

Philosophy

Languages

Surveying

Negotiating

Architecture

Geology

Science

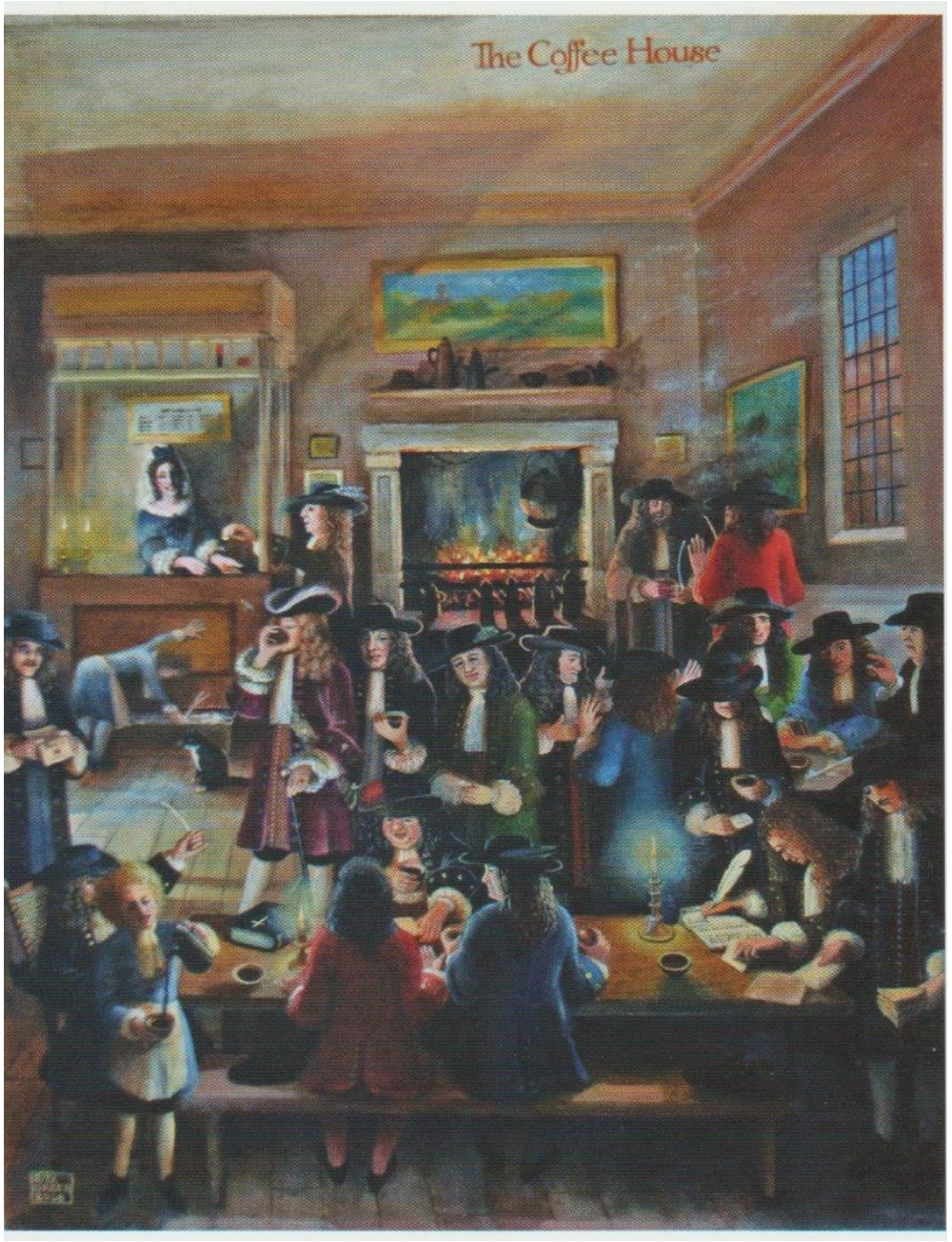
Engineering

Inventing

Chemistry

Astronomy

Metrology



Painting by Rita Greer: Hooke is holding up his quill

Robert Hooke's Interests

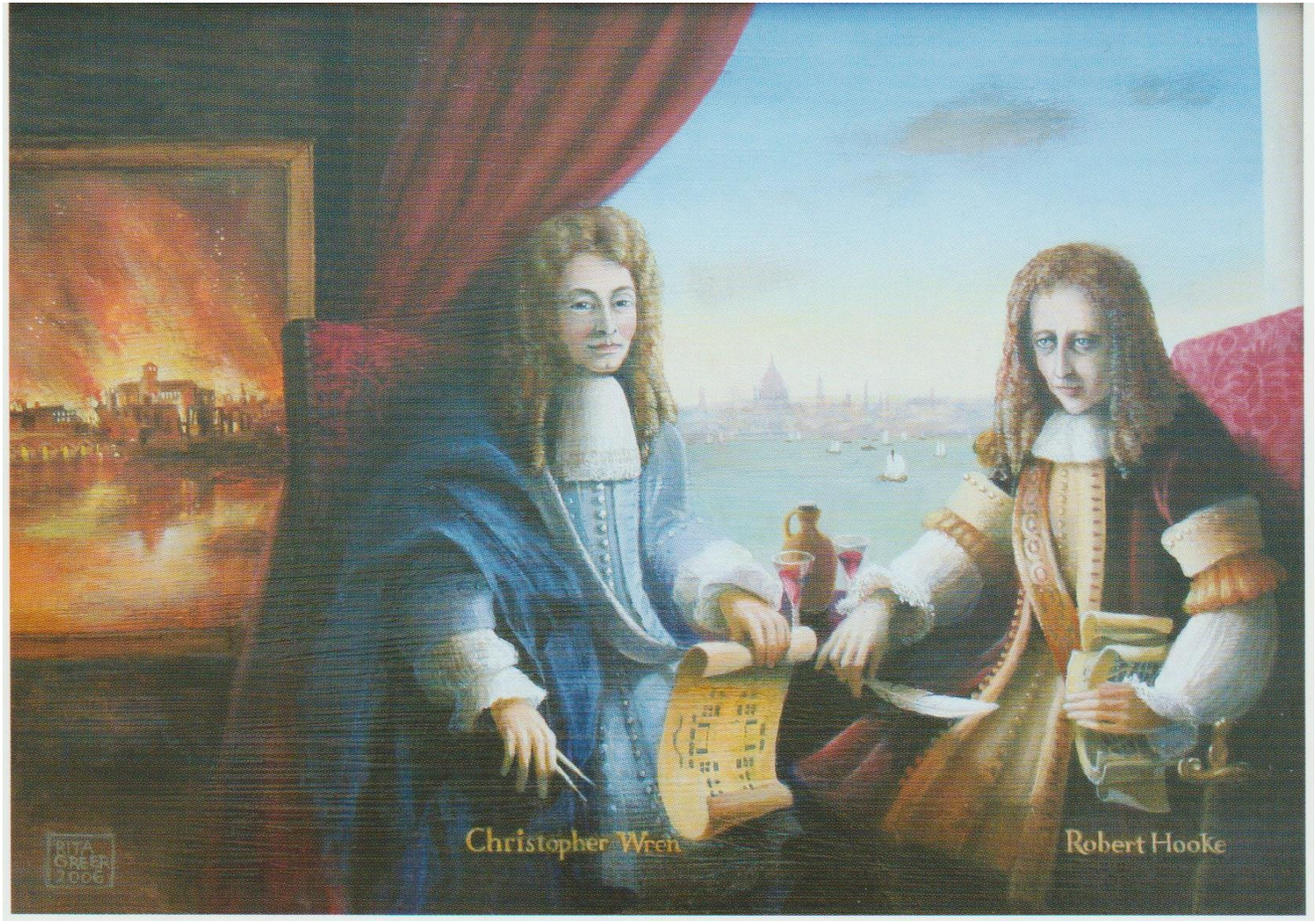
Entertaining through demonstrating experiments

Negotiating: land disputes after the Great Fire

Architecture: assistant to Wren +

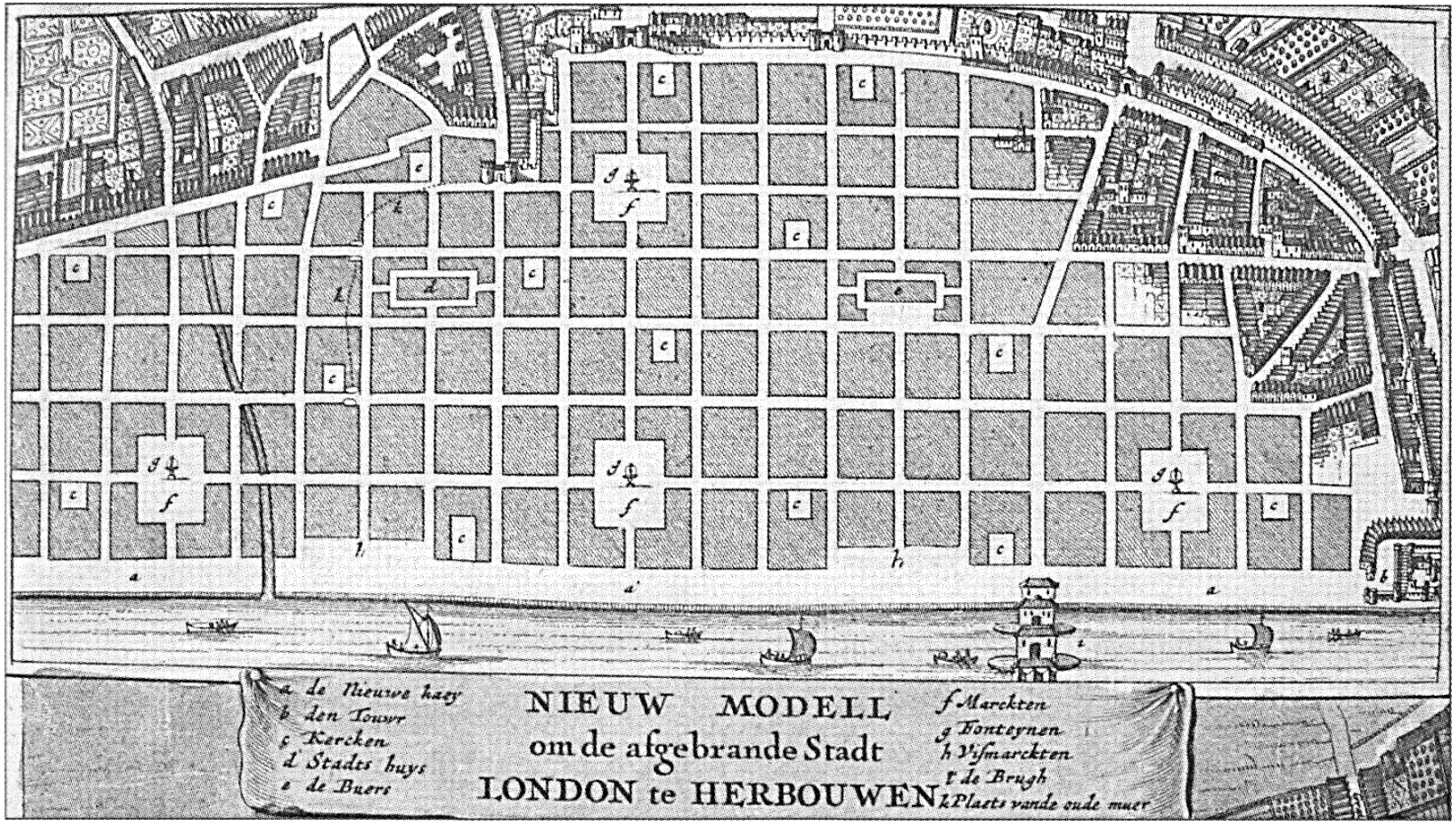
Surveying: laid out London

Wren and Hooke planning the New City



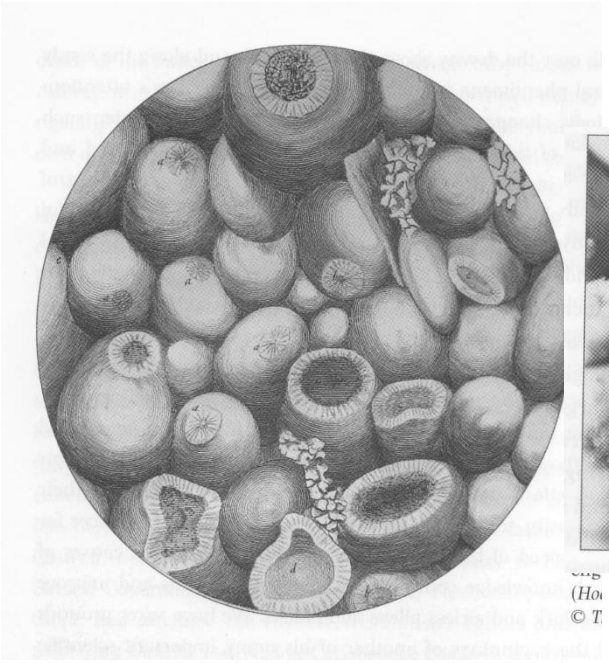
As envisaged by Rita Greer

Plan for London



41. Detail from Marcus Willemsz Doornick's 1666 plan (Figure 39) showing a new layout plan for London. The plan has been attributed to Hooke, but without convincing evidence in support. (*Guildhall Library, Corporation of London*)

Ketton Stone



Hooke's drawing

Optical Micrograph

Scanning Electron Micrograph

Young Robert Hooke at Freshwater Bay, Isle of Wight

Aged 10 in 1645 with many interests: geology, meteorology as invisaged by Rita Greer

Young Robert plus boat near All Saints' Church, Freshwater

Painting by Rita Greer presented to the Robert Hooke Society 2008

Hooke's Boyhood Skills

Mechanics: clock, model boat

Painting (limning) and Drawing (Micrographia)

Glass working: blowing, grinding, polishing

to limn: depict in painting or words

Hooke's Boyhood Skills

Dyeing: using alum from Alum bay and salt from Yarmouth

Navigation & communication between ship and shore

Fossils

Understanding the need for measuring instruments

Peter Lely

Self portrait

At Westminster School with Head Dr Richard Busby

Hooke interested in aviation holds a pet linnet Painting by Rita Greer

Life in London

Apprentice to Peter Lely

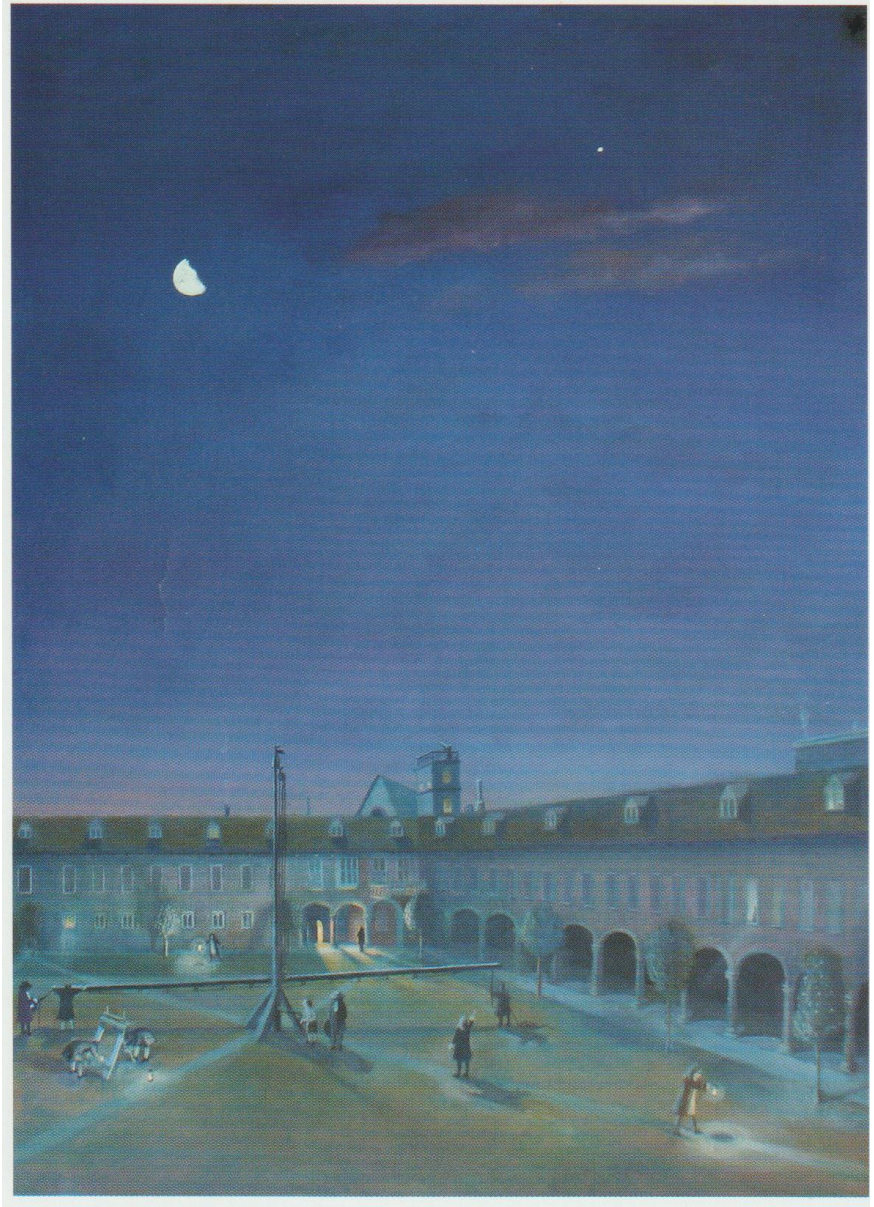
Westminster School (Head was Richard Busby)

Time out of school

John Wilkins's book "Mathematicall Magick"

Francis Bacon's ideas on observation to gain knowledge

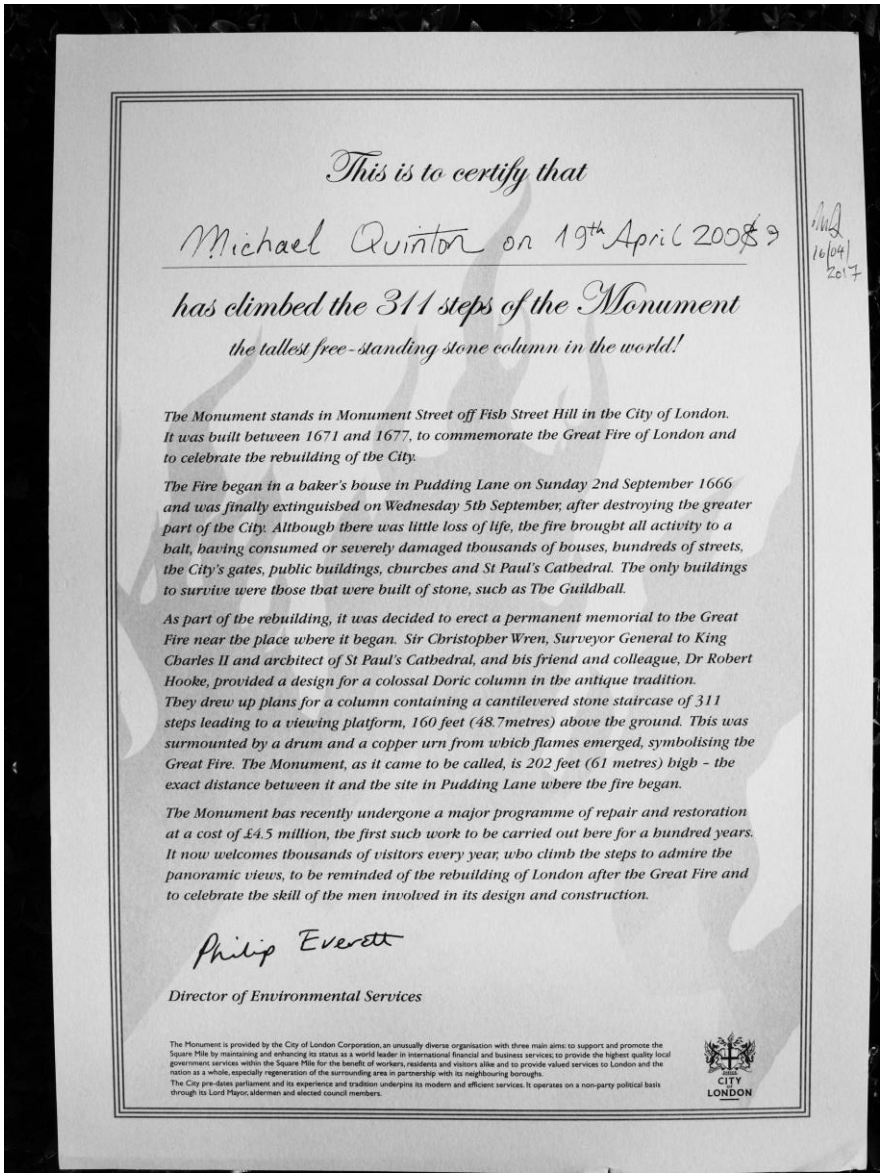
Astronomy at Gresham College



As envisaged by
Rita Greer

Monument to the Great Fire of London 202 feet (61 Metres)
Certificate for climbing the 311 Steps (each exactly 6” high)

The Monument, 1750, Sutton Nicholls. Reproduction courtesy of guildhall Library



This is to certify that

Michael Quinton on 19th April 2008

has climbed the 311 steps of the Monument

the tallest free-standing stone column in the world!

16/04/2017

The Monument stands in Monument Street off Fish Street Hill in the City of London. It was built between 1671 and 1677, to commemorate the Great Fire of London and to celebrate the rebuilding of the City.

The Fire began in a baker's house in Pudding Lane on Sunday 2nd September 1666 and was finally extinguished on Wednesday 5th September, after destroying the greater part of the City. Although there was little loss of life, the fire brought all activity to a halt, having consumed or severely damaged thousands of houses, hundreds of streets, the City's gates, public buildings, churches and St Paul's Cathedral. The only buildings to survive were those that were built of stone, such as The Guildhall.

As part of the rebuilding, it was decided to erect a permanent memorial to the Great Fire near the place where it began. Sir Christopher Wren, Surveyor General to King Charles II and architect of St Paul's Cathedral, and his friend and colleague, Dr Robert Hooke, provided a design for a colossal Doric column in the antique tradition. They drew up plans for a column containing a cantilevered stone staircase of 311 steps leading to a viewing platform, 160 feet (48.7metres) above the ground. This was surmounted by a drum and a copper urn from which flames emerged, symbolising the Great Fire. The Monument, as it came to be called, is 202 feet (61 metres) high – the exact distance between it and the site in Pudding Lane where the fire began.

The Monument has recently undergone a major programme of repair and restoration at a cost of £4.5 million, the first such work to be carried out here for a hundred years. It now welcomes thousands of visitors every year, who climb the steps to admire the panoramic views, to be reminded of the rebuilding of London after the Great Fire and to celebrate the skill of the men involved in its design and construction.

Philip Everett

Director of Environmental Services

The Monument is provided by the City of London Corporation, an unusually diverse organisation with three main aims: to support and promote the Square Mile by maintaining and enhancing its status as a world leader in international financial and business services; to provide the highest quality local government services within the Square Mile for the benefit of workers, residents and visitors alike and to provide valued services to London and the nation as a whole, especially regeneration of the surrounding area in partnership with its neighbouring boroughs.
The City pre-dates parliament and its experience and tradition underpins its modern and efficient services. It operates on a non-party political basis through its Lord Mayor, aldermen and elected council members.

CITY OF LONDON

Plaque at foot of The Monument

to commemorate

Robert Hooke

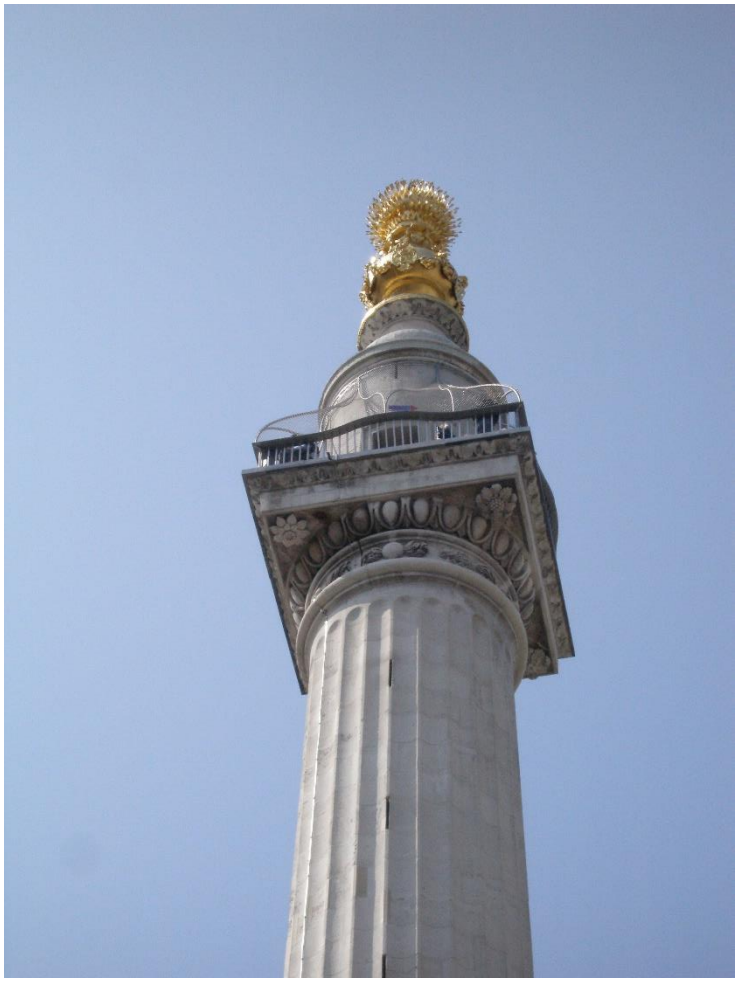
1635 -1703

Curator of Experiments at the Royal Society, Professor of Geometry Gresham College,

Surveyor to the City of London

Horologist, Astronomer, Geologist, Physiologist, Architect, Natural Philosopher & England's Leonardo

The Monument



Portrait in the Robert Hooke Science Building, Open University, Milton Keynes

Rita Greer
2008

St Mary Magdalene, Willen, Bucks

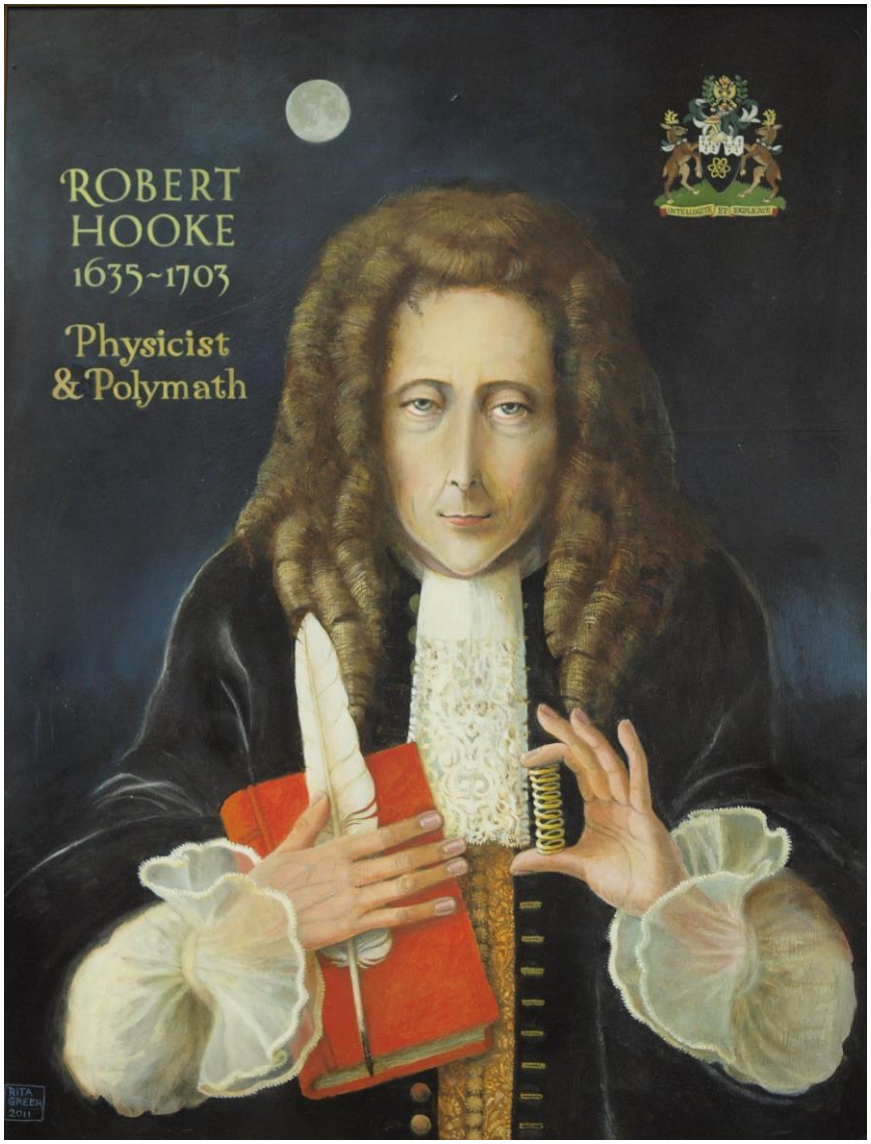
St Mary Magdalene, Willen, Bucks

Memorials in St Paul's Cathedral

Christopher Wren

Robert Hooke

Robert Hooke at the IOP



Rita Greer
2012