

London 1685

# GNOMONIKES,

OR

The Art of Drawing

## SUN-DIALS

On all sorts of

## PLANES

By Different Methods.

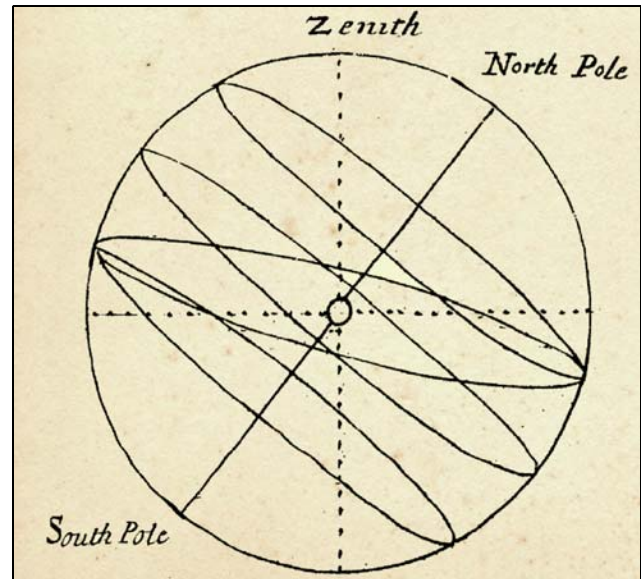
With the Geometrical Demon-  
strations of all the Operations.

By Mr. DE LA HIRE of the  
Royal Academy of Sciences.

*Rendred into English and Illustrated by an Ex-  
ample in Numbers.*

By JOHN LEEK Profeffor of the  
Mathematicks.

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joyning to St. Peters Alley in Cornhill, and at the  
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London-Bridge, 1685.



*Circles of the Sphere*

*To find the Center and draw the Equi-  
noctial Line, the Declination of  
the Sun, and one Tract of Shadow  
being given.*

### CHAP. VI.

*To place the Substylar and Equinoctial  
Lines, and the Center of the  
Dial, and to determine the position  
of the Axis.*

*Any Two Points of Shadow being  
given, with the Declination of the  
Sun at the time of Observation of  
the Points of Shadow.*

### CHAP. VII.

*To place the Substylar Line, the Cen-  
ter of the Dial and the Equinoctial  
Line.*

*One only Point of Shadow being given,  
with the Declination of the Sun and  
height of the Pole above the Ho-  
rizon.*

### CHAP. VIII.

*To find the Center of the Dial, and to  
situate the Substylar and Equinoctial  
Lines.*

*One only Point of Shadow being given,  
and the shortest Shadow.*

### CHAP. IX.

*To find the Center of the Dial, and to  
draw the Substylar and Equinoctial  
Lines.*

*Two Points of Shadow being given, with  
the Declination of the Sun at the  
times when the Points of Shadow  
were observed.*

“GNOMONIKES, OR The Art of Drawing  
SUN-DIALS On all sorts of PLANES By  
Different Methods” is a small size book. A Second  
Edition was published in 1693. The contents of the  
First Edition are:

### THE FIRST PART.

#### CHAP. I.

*Of the Circles of the Sphere necessary  
to be known for the Drawing of  
SUN-DIALS.*

#### CHAP. II.

*Of the Definition of Sun-Dials, and  
of the principal parts which serves  
for their Construction.*

#### CHAP. III.

*To Mark the Points of Shadow.*

#### CHAP. IV.

*To Draw the Horizontal Line.*

#### CHAP. V.

*To find the Substylar Line, two  
Points of Shadow being given in a  
certain condition.*

#### CHAP. X.

*To find the Center of the Dial , and to draw the Substylar and Equinoctial Lines.*

*Any two Points of Shadow being given, with the Declination of the Sun at the time of Observation of the Points of Shadow.*

#### CHAP. XI.

*To find the Center of the Dial, and to draw the Equinoctial Line.*

*The Substylar Line being drawn, and one Point of Shadow being given, with the Declination of the Sun.*

AND

*To draw the Equinoctial Line the Center of the Dial being found.*

AND

*To find the Center of the Dial , the Equinoctial Line being drawn.*

#### CHAP. XII.

*To draw the Equinoctial Line, and the Substylar Line, and to find the Center of the Dial.*

*Any two Points of Shadow being given with the Declination of the Sun.*

#### CHAP. XIII.

*To find the Points of the Hours of 6 and 12 on the Equinoctial Line , and to draw the Meridian Line.*

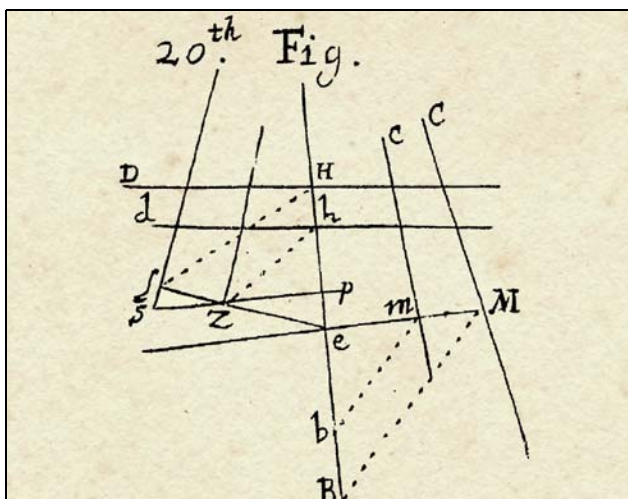
*The Equinoctial and Horizontal Line being given.*

*Or to draw the Meridian, the Center of the Dial being given.*

#### CHAP. XIV.

*To draw the Meridian Line , and to find the Point of the Hour Line of six on the Horizontal Line.*

*Only one Point of Shadow being given, with the height of the Pole, and the Declination of the Sun.*



*Drawing the Meridian Line and Substylar Line*

#### CHAP. XV.

*To draw the Meridian Line.*

*Two Points of Shadow being given in a certain condition.*

#### CHAP. XVI.

*To find the Center of the Dial or determine the Inclination the Axis with the Meridian, to draw the Substylar and Equinoctial Lines.*

*The Meridian being found , and the height of the Pole being given.*

#### CHAP. XVII.

*Remarques and Practices for divers Abridgments in the Operations of the fore-going Chapters.*

### THE SECOND PART.

#### THE PREFACE.

#### CHAP. I.

*To mark the Points of the Astronomique Hours on the Equinoctial Line and by those Points to draw the Hour Lines.*

#### CHAP. II.

*To mark the Points of the Astronomique Hours on the Horizontal Line.*

*And to draw the Hour Line by those Points.*

#### CHAP. III.

*Six Intervals of Hours following one another being given , to draw all the other Hours.*

#### CHAP. IV.

*To draw the Parallels of the Twelve Signs.*

#### CHAP. V.

*The Equinoctial Line being given, we may draw a Parallel to it by a Point given on an Hour Line.*

#### CHAP. VI.

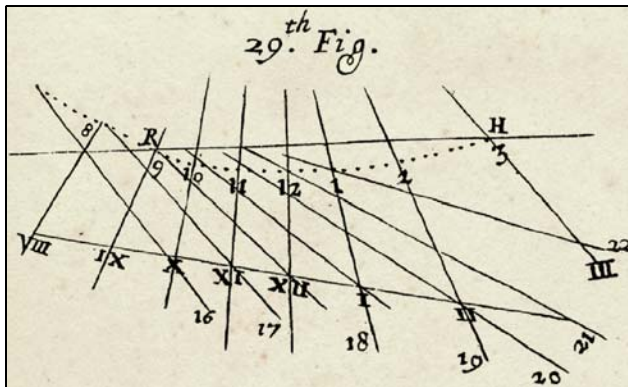
*To draw the Italian and Babilonian Hours upon an Horizontal Plane.*

#### CHAP. VII.

*To draw the Italian and Babylonian Hours , on a Plane which is not Horizontal.*

#### CHAP. VIII.

*To continue the Description of the Italian and Babylonian Hours, when the Parallel or the Equator is wanting on the Plane of the Dial.*



*Constructing the Italian Hours*

#### CHAP. IX.

*Four Astronomique Hours being given, following one another in order, with the Equinoctial Line.*

*To find the other Hours.*

#### CHAP. X.

*A Dial being given which is already drawn, to find the foot of the Style which did serve to draw it, and to determine the heighth thereof.*

#### CHAP. XI.

*To place the Axis.*

#### CHAP. XII.

*To Draw Dials by Reflection.*

#### CHAP. XIII.

*Concerning the Table of the Suns Declination, and of those of the Difference of Meridians of divers considerable places in respect of Paris.*

#### A TABLE

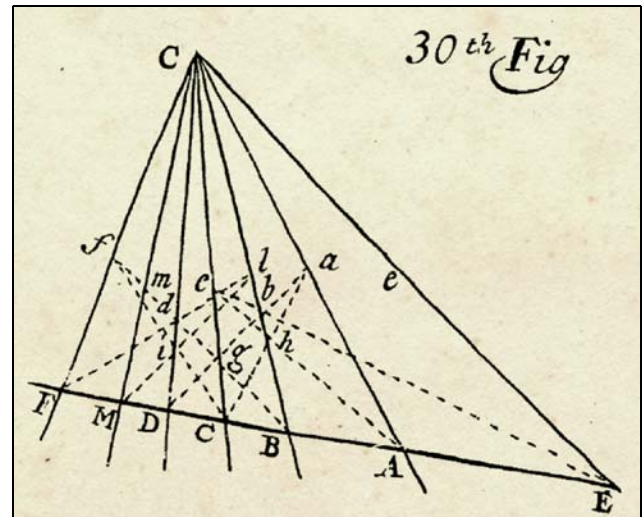
*Of the Suns Declination  
For the Year 1681,  
Which was the First after  
Bissextile or Leap-year.*

#### A TABLE

*Of the Suns Declination  
For the Year 1682,  
Being the Second after  
Bissextile or Leap-Year.*

#### A TABLE

*Of the Suns Declination  
For the Year 1683,  
Being the Third after  
Bissextile or Leap-Year.*



*Astronomical Hours*

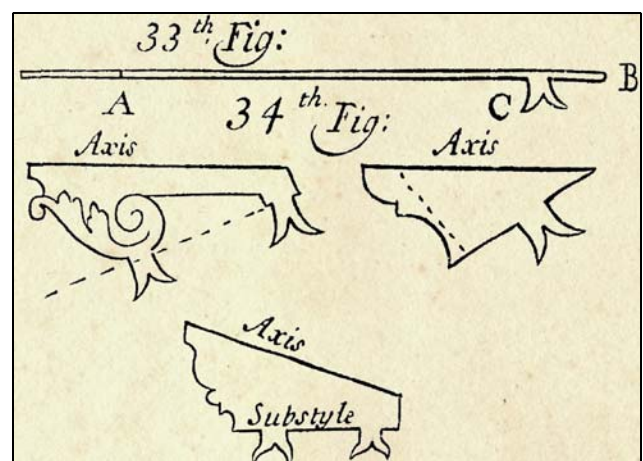
#### A TABLE

*Of the Suns Declination  
For the Year 1684,  
Being  
Bissextile or Leap-Year.*

#### A TABLE

*Of the Differences of Meridians  
Of the most considerable Places  
In the whole World,  
In respect of P A R I S,  
With the height of the Pole or  
Latitude of the same places.*

*F I N I S.*



*A Selection of Gnomons*