## JOHN COLLINS, DESCRIPTION AND USE OF FOUR SEVERAL QUADRANTS

## London 1770

## THE

Defcription and Ufe Of Four feveral QUADRANTS,

Two Great ones, and Two Small Ones.
With the USE of A
Diagonal-Scale and Semicircle
Each of them accommodated with Linies and Circeles for the Refolving of Propofitions Inftrumentally, In Chronology, LOMGIMETRIA, astronomy, $\}$ navigation, Altimetria, $\}$ Dialling.

Invented and $W$ ritten by the Ingenious $\stackrel{M r}{ }$. J OHN Collins, and Engravid by the Curious Hand of $\mathcal{M a r}$. Henry Sutton; with Additions, not in the former Treatise, by J O HN GOOD.

## LO $\mathbb{C D O} \mathcal{X}$ :

Printed for W. and J. MOUNT and T. PAGE, in Po-ftern-Row on Tower-Hill. MDCCL.
"THE Description and Use Of Four several QUADRANTS" is a small book with engraved images by Henry Sutton, the well known Instrument Maker. It contains:

A Description of the Q U A DRANT, Five Inches Radius.

Of the Lines on the Foreside of the Q U A D R A N T.
Sect. I. Of the Quadrant and Shadows.
THE

## Use of the Dialling SCALES:

SHEWING
How to draw Hour Lines on all Horizontal Dials, East, West, North and South Dials ; also declining Dials to any Declination : With an easy Way to draw declining Dials, without taking the Declination of the Plane.

Sect. I. How to draw an Horizontal Dial for the Latitude of 51 degrees 30 minutes
Sect. II How to make a direct South-Dial, in the Latitude of 51 deg .30 min .

Sect. III. Concerning a direct North-Dial.
Sect. IV. How to draw Hour-Lines upon a direct East or WestDial.


Construction of a Horizontal Dial
Sect. V. How to find the Declination of any Plane, from either the South or North Points of the Horizon.

Sect. VI. How to draw Hour-Lines upon South or North Planes, Declining either East or West, in the Latitude of 51.30.
Sect. VII. How to draw the Hour-Lines upon a Far Declining Dial Geometrically.

Sect. VIII. How to make an Upright South-Dial, without knowing the Declination of the Plane, the Elevation of the Pole being given.

Sect. IX. How to find the Requisites of upright Decliners, by the particular Lines on the Quadrant, without proportional Work.
Sect. X. By the Epact, to find the Moon's age, and the Time of her coming to the South.


Vertical West Declining Dial


Due West Dial
Sect. XI. To find the Time of High-Water by the Moon's Age, or Southing, by the following Table.
Sect. XII. Of the Line of Inscribed Bodies.
Sect. XIII. To find the Requisites for direct East or West Recliners or Incliners, for this Latitude.
Sect. XII. Of the placing of the stars on this Projection, and on other Places of the Foreside of the Quadrant.

## T H E

Description of the Diagonal S C ALE.
The U S E of the Diagonal-Scale.
I. To find the Time of the Sun's Rising and Setting.
2. To find the Hour of the Day or Night for South-Declination.

For North-Declination.
5. To find the Amplitude of the Sun and Stars.
6. To find the Azimuth of the Sun, or any Star in the Hemisphere.

For South-Declination.
For North-Declination
On the Back-side are drawn all these Lines.
The Use of these Scales.
Of the Line of the Stile's Height.
Of the Substiler Line.
Of the Line of the Angle of 12 and 6 .


An $80^{\circ}$ Westward Declining dial
I. The Substile's Distance from the Meridian.
2. For the Stile's Height.
3. For the Inclination of the meridians.
4. For the Angle of 12 and 6.

Of the Hour and Azimuth-Scales.
Sect. I. The Description and Use of a Semicircle for this Latitude.
Sect. II. Concerning the Projection for the Latitude of Barbadoes and Greenland, that is annexed to the Cut of the Semicircle.

The Instrumental Work of some of the foregoing Treatise of Mr. John Collins, Performed by Artificial Sines and Tangents.
Sect. I. His greatest Declination and Place given, to find his presentDeclination.

Sect. II. The Sun's greatest Declination and present Declination given, to find his Place.

Sect. III. The Sun's Declination and Distance, from the nearest Equinoctial-Point given, to find the Right Ascension.
Sect. IV. To find the Sun's Amplitude, or Coast of Rising and Setting from East or West.
$F I N I S$.

