## Geometrical Dyalling : <br> . <br> DYALLING

Performed by a line of CHORDS onely, PLAIN'SCALE
Wherein is contained two feveral Methods of Infcribing the Hour-Lines in all Plains, with the Subftile, Stile and Meridian, in their proper Coafts and Quantities;
Being a full Explication and Demonftration of divers difficulties in the Works of the Learned Mr. Samuel Fopterdeceafed, late Profeffor of Aftronomy in Gre/ham Colledge, ; Alfo a Collection of divers things from the Works of Clavius and others.
Whereto is added four new Methods of Calculation, for finding the Requifites in all Learning Plains, with full directions fuited to each Method for placing them in their proper Coafts, without help of any Delincations.
Alfo how by Projecting the Sphere, to meafure off all the Arks found by Calculation, and to determine what hours are proper to all kinde of Plains, omitting fuperfluity.
Lastly, the making of Dyals from three Shadows of a Gnomon placed in a $W$ all at random, with a Method of Calculation fuited thereto, and divers ways from three

Shadows, to finde a Meridian-line.
W ritten by fobn Collins of London Accomptant, Pbilomath.
London, Printed by Thomas Gobnfon for Franck Coginet, and are fold at his Shop at the Anchor and Mariner in Tower-ftreet, at the end of Mincinglane, with other Mathematical Books; Alfo to be fold by Henry Sutton Mathematical Inftrument-Maker, living in Threed-needle Street behinde the Exchange. 1659.
"Geometrical Dyalling : or DYALLING Performed by a Line of CHORDS onely, Or by the PLAIN SCALE" by John Collins is a small book with the following Contents:

The Contents:

DYals Distinguished. To take the Suns Altitude without Instrument.
To finde the Reclination of a Plain.
Also the Declination thereof.
A general proportion and scheam for finding the Suns Azimuth or true Coast.
To draw a Horizontal Dyal.
Also a South Dyal.
A new way to divide a Tangent line into five hours and their quarters.
AdirectSouth Polar Dyal.
To prick off the Requisites of upright Decliners.
To prick off an Arch or Angle by Sines or Tangents.
The Scheam for placing the Requisites of upright Decliners demonstrated.
To inscribe the hour-lines in an upright Decliner.
The Demonstration thereof.
An East Dyal.
Requisites placed in Eastor West leaning Plains.
The Demonstration thereof.
The Construction of the general Scheam for placing the Requisites in Declining Reclining/Inclining Plains.


A direct South Diall Reclining $60{ }^{d}$
The first Method of Calculation for Oblique Plains.
And directions for the true placing the Requisites suited thereon.
The general Scheam demonstrated.
The hour-lines inscribed in an Oblique Plain.
The general Scheam fitted for Latitudes under forty five degrees.
To draw hour-lines in a Declining Polar Plain.
Also how to delineate the hour-lines in Plains having small height of Stile.
Another way to performe the same.
A second Method of Calculation for Oblique Plains.
Proportions for upright Decliners.
A third Method of Calculation for Oblique Plains.
Directions for placing the Requisites suited thereto.
A fourth Method of Calculation for Oblique Plains.
Through any two points assigned within a Circle to draw an Arch of a Circle that shall divide the primitive Circle into two Semicircles.
To measue the Arks of upright Decliners by Projection.
Also the Arks ofleaning East or West Plains thereby.
To project the Sphere for Oblique Plains.
To measure off all the Arks that can be found by Calculation.
With the Demonstration of all former Proportions.
To determine what Hours are proper to all Plains.
Another Method of inscribing the Hour-lines in all Plains by a Parallelogram.
To draw the Tangent Scheme suited thereto.
The Hour-lines so inscribed in a Horizontal and South Dyal. As also in an upright Decliner.
With another Tangent Scheme suited thereto for pricking them down without the use of Compasses.
A general Method without proportional work, for fitting the Parallelogram into Oblique Plains that have the Requisites first placed.
By help of three shadows to finde a Meridian-line.
Another scheme suited to that purpose.
A Method of Calculation for finding the Azimuth, Latitude, Amplitude, \&c. by three shadows.
From three shadows to inscribe the Requisites and Hourlines in any Plain.
Which is to be performed by Calculation also.

