John Dee’s New World Horologium
VITRUVIUS

JOHN DEE
“...the Architect’s work must be solidly based on the principles of Geometry, Arithmetic, Optics, Music, Astronomy, Cosmography – indeed all the Mathematical Arts...”
“...by Optics, I mean the Lights of heaven are well-led in the buildings, from certain quarters of the world.”
“As for Astronomy, the Architect must know East, West, South, and North, and the design of the heavens, the Equinox, the Solstices, and the course of the stars.

Anyone who lacks knowledge of these matters will be unable to understand the Art of Horology.”
Horometry is a Mathematical Art which demonstrates how, for any given location, the exact designation of time may be known.

In antiquity, part of this Art was called Gnomonica. More recently, it was called Horologiographia. And in English, it is called Dialing.

It takes more than a talented Painter to prescribe the path of the Sun’s shadow, (down to a hair’s-width), for any regular surface in any given location.

In my youth, I invented a way to accomplish this feat of determining how, using any Horizontal Dial [like a dial on a floor], Mural Dial [a wall dial] or Equinoctial Dial [a tilted dial], at any given hour (provided the Sun is shining), to determine the Sign and Degree ascendant.
Man’s affairs often require knowledge of time at moments when neither the Sun, Moon, or Stars can be seen.

So, industrious mechanics invented a way to keep track of time using a consistent flow of water. Vitruvius rightfully praises to the skies the famous Inventor Ctesibius.

Later, hours were measured by running Sand.

Then, using gears and by weights.

And lately, using gears without weights, using a Spring instead.

But all these methods require corrections over time... because of the inaccuracy of their own Operation.
There remains, among the Philosophers, a more excellent, more commodious, and more marvelous way than all these to imitate the motion of the Primovant (or the first equinoctial motion) by using Nature and Art, which you shall understand more of, by further search in weightier studies.
Dee’s Advice to Astronomers:

And won’t the Astronomer regret all his sleepless vigils and the cold labors he has suffered under the open sky, when here, without any discomfort from the air, under his own roof, with windows and doors shut on all sides, at any given time, he is able to observe the movements of the heavenly bodies?

And, indeed, without any mechanical instruments made from wood or brass?
In Greek, thalamos means room or chamber.

Althalmasat is Dee’s (cryptic) coined term for the camera obscura.
Aphorism 49.

Investigate why planets reflect rays of their own light... from the air, clouds, water, mountains and similar bodies.

Observe and contemplate the wonders of the many fracturings of the heavenly rays in the air, the clouds, and the water and you will be impelled to praise the infinite goodness and Wisdom of God.
Ignazio Danti’s “meridiana” in the Santa Maria Novella Church in Florence
A plain discourse and
publick prays for gracious queen Elizabeth.
By the grace of God, King of Scots, &c.,
Froward and embittered words against the necessary reformation of the whole
Church of England, the Civil sword, and those
attaching obedience according to
the time by the
point.

In the method
of this present consideration of
true, the true plane, or plane, or other plane, is
determined by a right line imagined to pass from the
center of the earth to the center of the body of the planet, or
other plane, up the first and highest heavenly 
substances. And as from the upper end and mathematical point of that imagined line so, there the true plane of the
planet, or plane, or other plane is imagined and regular to be cast as in a
plane, or other plane, mobile, either forward, backward or by
random. So, within the appearance of the same one
determines the true plane
of the same plane or plane, or
in move, and such one
proposing matter than some
that the same, the permanent thing, or the me-
ternal more by the law
on the second act; and
is the principal more
the circumferences, and all
other planes and forms
those motions as composed
of, or in what plane though they are slow, more wide in latitude
on either side. That imagined circumferential plane of the

Some way,
Simon Breden (Astronomer)

Nicolas Copernicus (Astronomer)

Queen Elizabeth the Reformer of the Year for the next Christian epoch (lived 930 years)

Adam created (lived 30 years)
Elizabeth, our Empress bright,
Who in the year of Eighty Three,
Thus made the truth come to light,
And Civil Year with Heaven agree.
New World

with Religious freedom

New Time

1582
Dee’s Calendar
Mission Failed
REJECTED

1583

Colony on the John Dee River
WHAT DID THE TOWER ORIGINALLY LOOK LIKE?
MONAS HIEROGLYPHICA
IOANNIS DEE, LONDINENSI
AD
MAXIMILIANVM, DEI GRATIA
ROMANORVM, BOHEMIAE ET HUNGARIAE
REGEM SAPENTISSIMVM.

DE ROYCE CARE, ET PINGVENDOE TERRAE, DET HIBI DEVS. GENII.

Ex istis Schemaribus plura elici possunt: (si penitus considerentur) quàm apertis par est proferre verbis. Hoc tam en præ ceteris monemus singulare vnum, (à nobis etiam Primis vna cum tota hac noua euulgatum arte) Rationem basi turj radiis effunde fama et perpetue.
Magistralia \{ \text{Lap.} \ \text{Ferm.} \} 252.
3 camera obscura rooms
Large Sundial on the Dome Room floor

(south)

11 1 2

NOON

hole in dome

Dec. 21
Jan. 21
Feb. 21
Mar. 21
April 21
May 21
June 21
July 21
Aug. 21
Sept. 21
Oct. 21
Nov. 21

Summer Solstice
Equinoxes
Winter Solstice
newporttowermuseum.com