

THE ASSAYER



In which
With a delicate and precise scale
will be weighed the things contained in
The Astronomical and Philosophical Balance
of Lothario Sarsi of Siguenza

Written in the form of a Letter
to the Illustrious and Reverend Monsignore

DON VIRGINIO CESARINI

Lincean Academician
Lord Chamberlain to His Holiness

BY

SIGNOR

GALILEO GALILEI

*Lincean Academician
Gentleman of Florence
Chief Philosopher and Mathematician
to the
Serene Grand Duke of Tuscany*



R O M E

MDCXXIII

DIALOGO
DI
GALILEO GALILEI LINCEO
MATEMATICO SOPRAORDINARIO
DELLO STUDIO DI PISA.
E Filosofo, e Matematico primario del
SERENISSIMO
GR.DVCA DI TOSCANA.

Doue ne i congressi di quattro giornate si discorre
sopra i due

MASSIMI SISTEMI DEL MONDO
TOLEMAICO, E COPERNICANO;

*Proponendo indeterminatamente le ragioni Filosofiche, e Naturali
tanto per l'una, quanto per l'altra parte.*

CON PRI

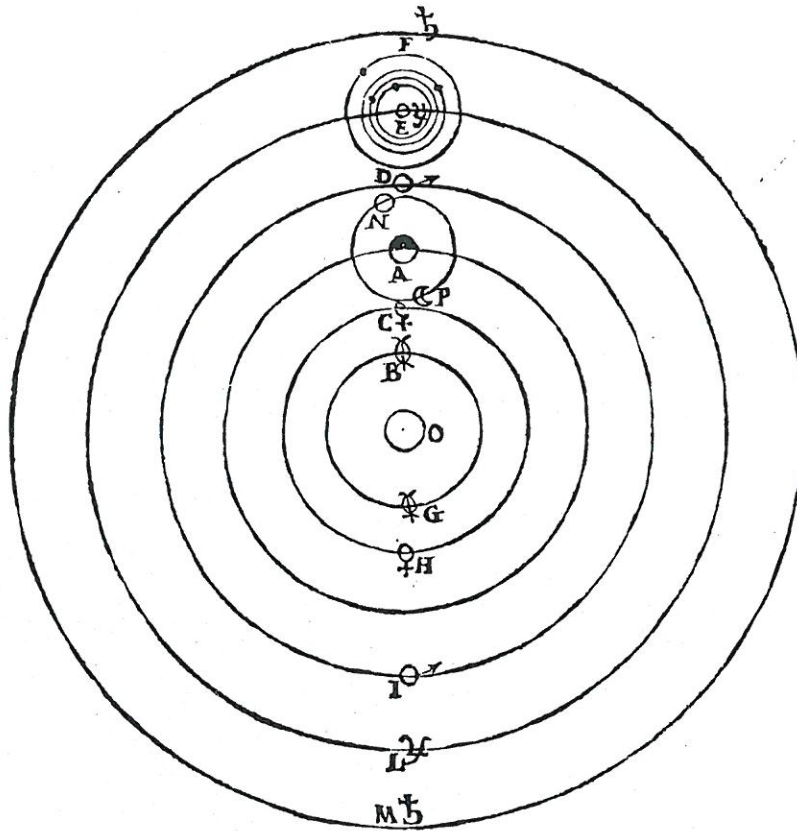


VILEGI.

IN FIRENZA, Per Gio:Batista Landini MDCXXXII.

CON LICENZA DE' SUPERIORI.

6.13. The title-page of Galileo's *Dialogue Concerning Two Chief World Systems* (1632). The two systems are the Ptolemaic (against which Galileo had powerful arguments) and the Copernican: he makes little mention of the Tychonic and semi-Tychonic systems which by then had superseded the Ptolemaic.



6.14. The Copernican system as depicted in Galileo's *Dialogue Concerning Two Chief World Systems*. On the Copernican view the Earth had been anomalous in having a satellite, but Galileo's telescope had shown that at least one other planet also had satellites.

Salviati. But we cannot yet determine surely the law [*governi*, not *legge*!] of revolution and the structure of the orbit of each planet (the study ordinarily called planetary theory); witness to this fact is Mars, which has caused modern astronomers so much distress. Numerous theories have also been applied to the moon itself since the time when Copernicus first greatly altered Ptolemy's theory.

Galileo, *Dialogue*, Day Four, p. 528

Salviati. ... To Mercury and Venus you [Simplicio] have attributed a circular motion around the sun without embracing the earth. Around the same sun you have caused the three outer planets, Mars, Jupiter, and Saturn, to move, embracing the earth within their circles. Next, the moon cannot move in any way except around the earth and without embracing the sun.... It now remains to apportion three things among the sun, earth, and stellar sphere: the state of rest, which appears to belong to the earth; the annual motion through the zodiac, which appears to belong to the sun; and the diurnal movement, which appears to belong to the stellar sphere, with all the rest of the universe sharing in it except the earth. And since it is true that all planetary orbs (I mean Mercury, Venus, Mars, Jupiter, and Saturn) move around the sun as a center, *it seems most reasonable* for the state of rest to belong to the sun rather than the earth – just as it does for the center of any movable sphere to remain fixed, rather than some other point remote from the center.

Next as to the earth, which is placed in the midst of moving objects – I mean between Venus and Mars, one of which makes its revolution in nine months and the other in two years – a motion requiring one year may be attributed to it much more elegantly than a state of rest, leaving the latter to the sun. And such being the case, it necessarily follows that the diurnal motion, too, belongs to the earth. For if the sun stood still, and the earth did not revolve upon itself but merely had the annual movement, our year would consist of no more than one day and one night; that is, six months of day and six months of night.

Galileo, *Dialogue*, Day Three, p. 379
(italics added)