

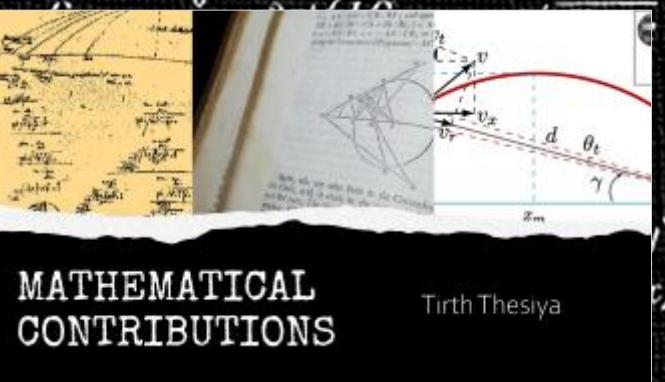
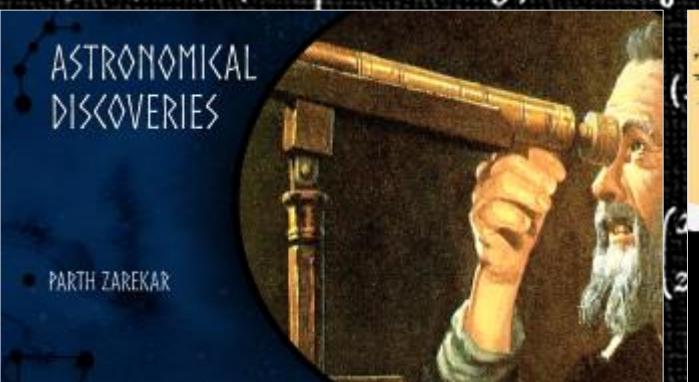
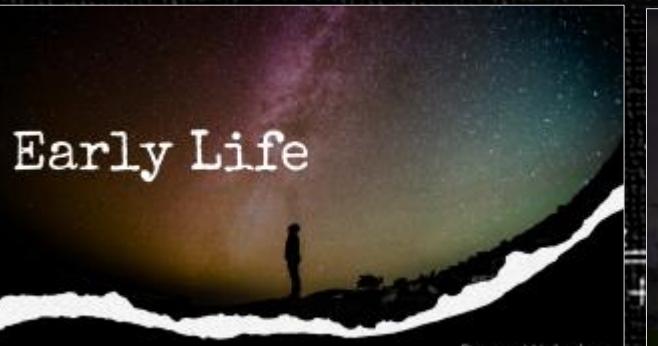


AN ORBIT AROUND THE LIFE OF GALILEO GALILEI



LADC PRESENTATION BY
GROUP 1
KRISHNARAJ, DEVANSHU,
PARTH, PRANAĀV, TIRTH AND
PRANAĀV

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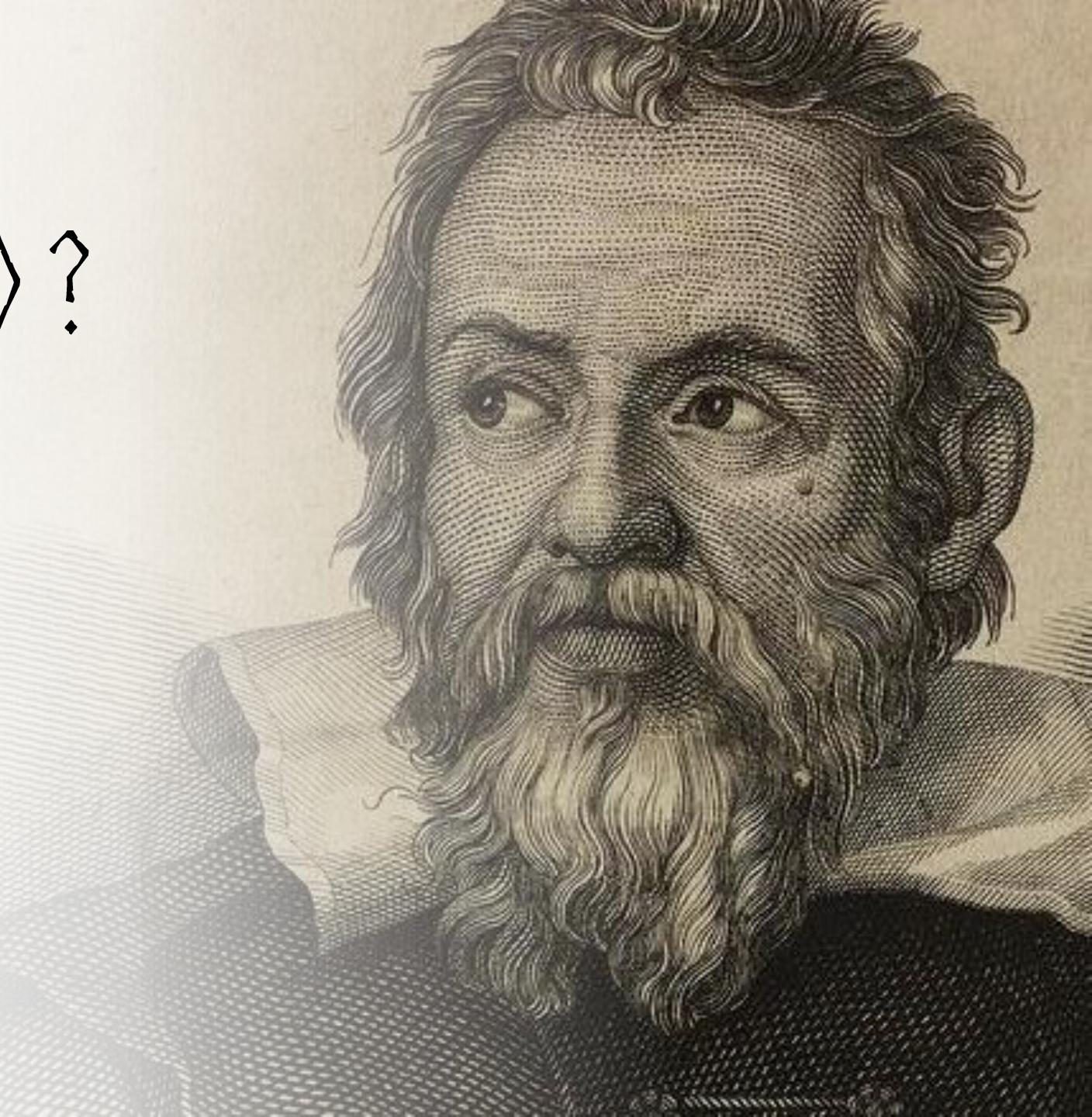


Early Life

Pranav Walvekar

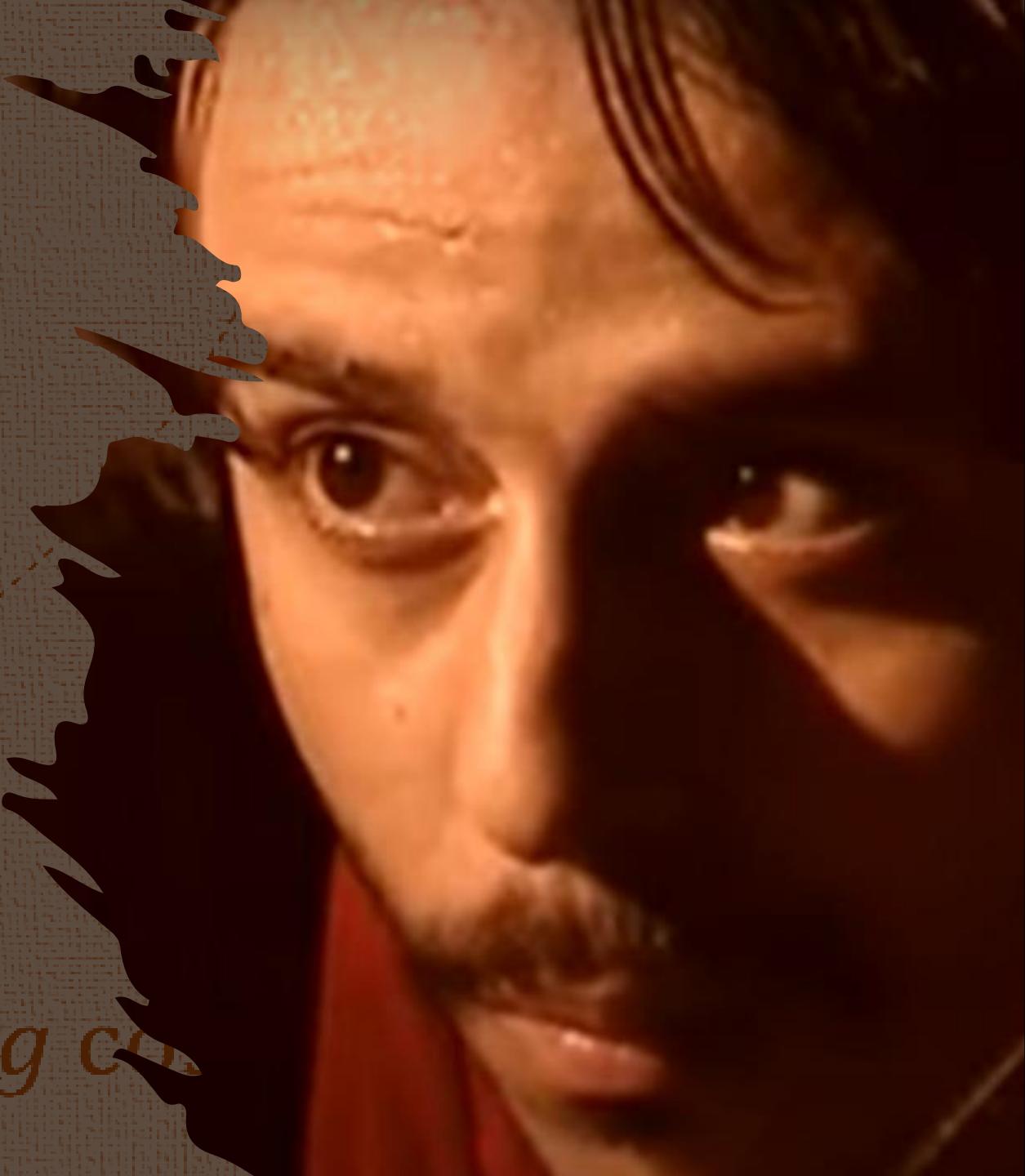
SO WHO WAS GALILEO?

Born in 1564, in Pisa, Italy, Galileo was a natural philosopher, astronomer, and mathematician who made fundamental contributions to the sciences of motion, astronomy, and strength of materials and to the development of the scientific method



Why is he Famous?

- Galileo Accomplished many things, but he was most famous for reinventing the telescope, Calculating Pendulum Equations with his experiments, and Discovering the orbits of Moons around Jupiter.



Educational Background

Devanshu Surana

Alma Mater

Galileo Galilei was educated at the Camaldolesse Monastery at Vallombrosa. In 1581 he was sent by his father to enroll for a medical degree at the University of Pisa.



Interest in Mathematics

Galileo never seems to have taken medical studies seriously, attending courses on his real interests which were in mathematics and natural philosophy. He left Pisa in 1585 without completing his medical degree and began teaching mathematics in Florence and later at Siena.



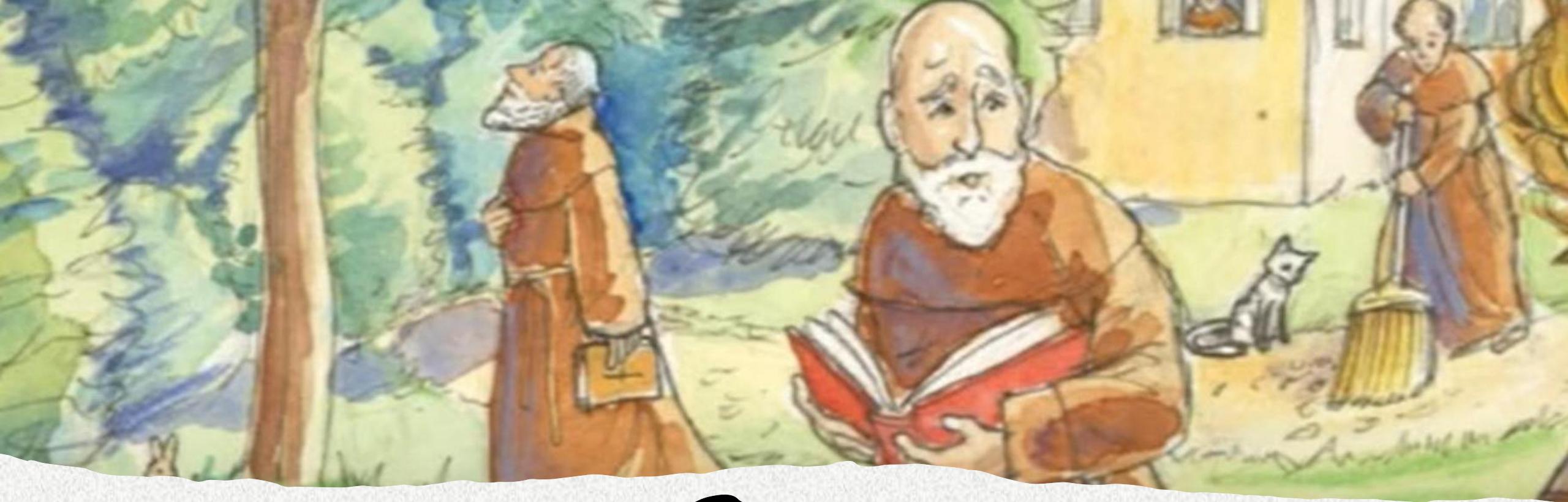
THE PENDULUM AND PURSUIT OF MATH

- In 1581, when he was studying medicine, he noticed a swinging chandelier, which air currents shifted about to swing in larger and smaller arcs.
- Up to this point, Galileo had deliberately been kept away from mathematics, since a physician earned a higher income than a mathematician. *However, after accidentally attending a lecture on geometry, he talked his reluctant father into letting him study mathematics and natural philosophy instead of medicine.*



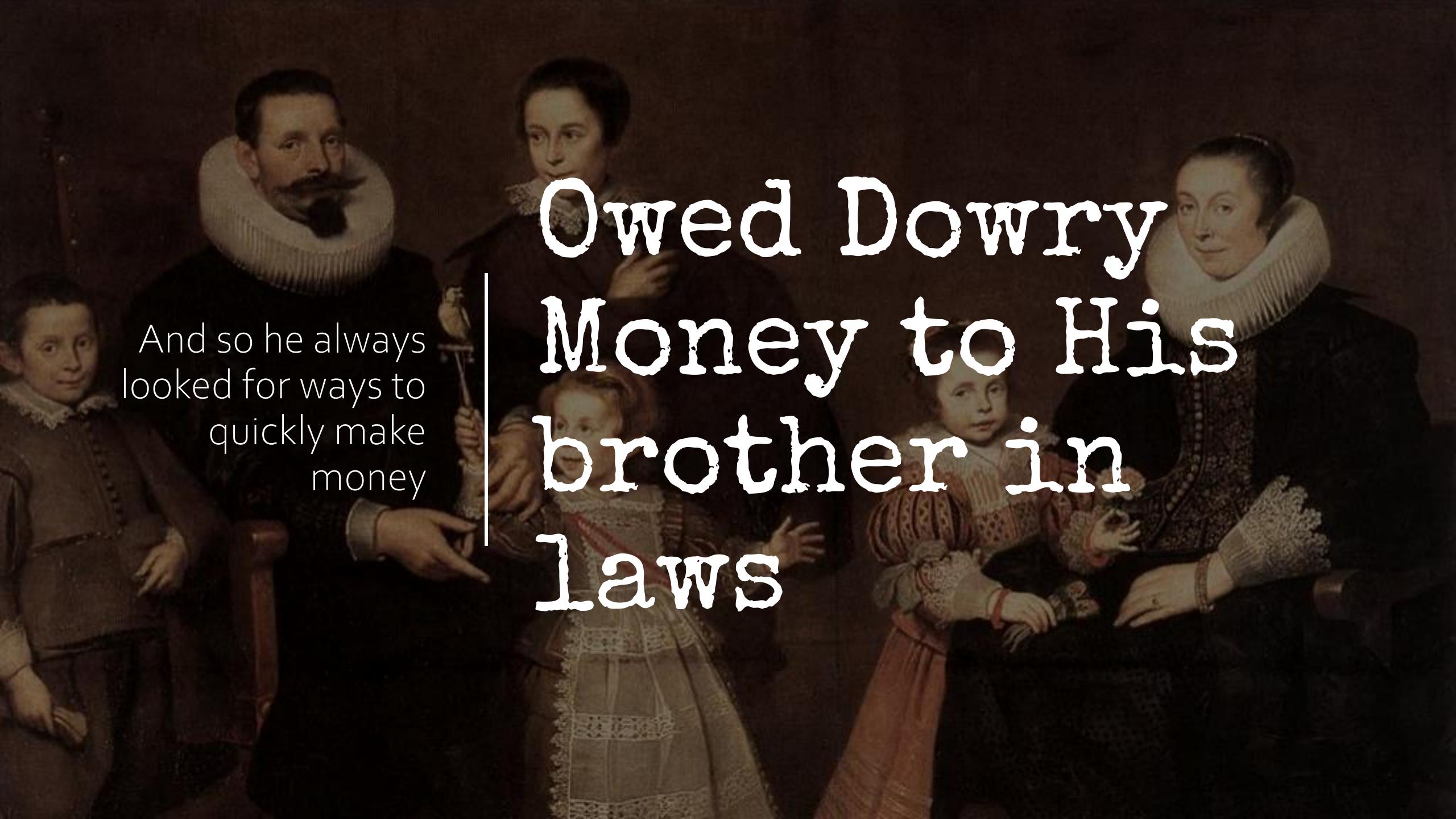
Reinventing the Telescope

KRISHNARAJ THADESAR



He was just
another
person

But his father had passed away early, and so now the responsibility of the entire family and marrying 2 of his sisters was on him.

A historical painting depicting a man with a mustache and a large white ruff collar pointing his finger towards a woman in a brown dress. The scene is set against a dark background with other figures visible.

And so he always
looked for ways to
quickly make
money

Owed Dowry
Money to His
brother in
laws

In the Summer of 1609, the Danish Glass was a popular Buzz

It was this new toy that made you see farther things clearly. Some form of magic to most people. But a desperate Galileo somehow found the opportunity to make quick money here.



Improving the Telescope

He Improves the Design,
while in desperate need of
money, so he can find a
useful application to sell.





Pic of the
telescope he made

Selling to the Duke and the King

He now reduced the time needed to know if an enemy ship was approaching the coast by 2 hours in comparison to the Naked eye. This was far too economical an invention, and so he secured a job for life, at twice his previous salary as a Math Professor.





With the new money, came a better telescope, and better discoveries

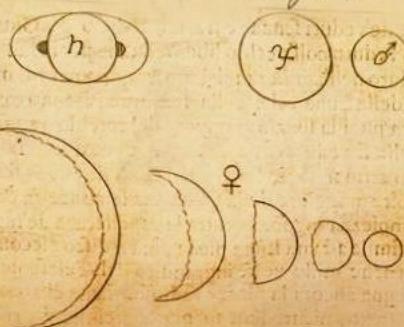


He Observed the Heavens,
which the church didn't
like...

NEW DISCOVERY

THE PLANETS MOVE
AROUND THE SUN!!

* * O tanti stelle ex orientali plaga, leque etis magna
orientalior à media distabat m. s. medii vero à fore m. t.
Die uiginti uesta Hor. o. is. Stellaris coordinatio eiusmodi fuit.
Gant' em' Stellaris erat, quae dæ orientales
à fore: hec ab eo min: s. aberat, media
dem distabat m. s. nō. orientalior u
dem recta distabat, et eiusdem magnitudinis era
orbitalis fore eadem fuit, in hoc tamen
o fore eadem fuit, in hoc tamen discrepans, quod prope
quarta stellaris ex oriente, emergebat esterius minor
remota s. c. ad punctum à recta linea versus boream attelle:
tatur, uti apparet Lyra demonstrat
Die uiginti septima Hor. i. in occasi, unica tanta stellaris
tatur, eaque Orientalis secundū huc distationem: eratq;
admodū exigua, et in fore remota min: s.



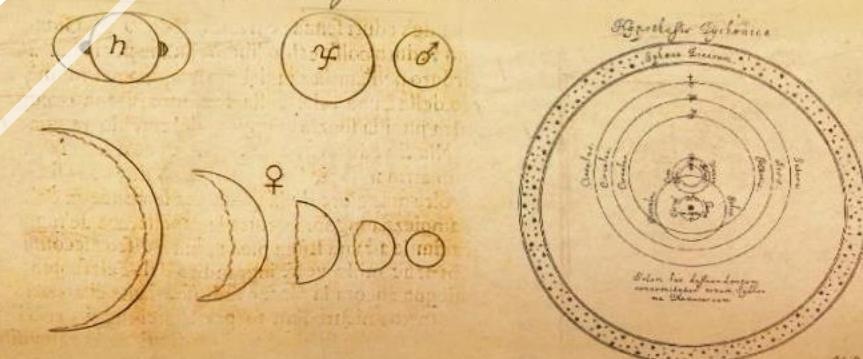
“Only God can see
the Heavens”

THEORY

~~NEW DISCOVERY~~

DO THE PLANETS MOVE
AROUND THE SUN!! ??

O tanti stelle ex orientali plaga, leque etis magna
orientalior à media distabat m. s. medii vero à fore m. t.
Die uiginti uesta Hor. o. is. Stellaris coordinatio eiusmodi fuit. Stellaris
Gant' em' Stellaris erat, quae dæ orientales, circa occidentalis
fore: hec ab eo min: s. aberat, media vero orientalis ab eo
distabat m. s. nō. orientalior uera à media m. t. in ca:
pitate eiusdem magnitudinis erant. Hora decima quinta
o fore eadem fuit, in hoc tamen discrepans, quod prope
quarta stellaris ex oriente, emergebat esterius minor
remota s. c. ad punctum à recta linea versus boream attelle:
tatur, uti apparet Lyra demonstrat
Die uiginti septima Hor. i. in occasi, unica tanta stellaris
tatur, eaque Orientalis secundū huc distationem: eratq;
admodū exigua, et in fore remota min: s.

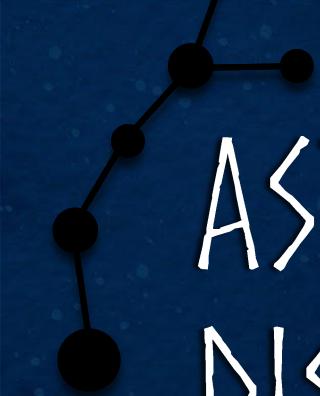




DISCOVERY OF CELLS

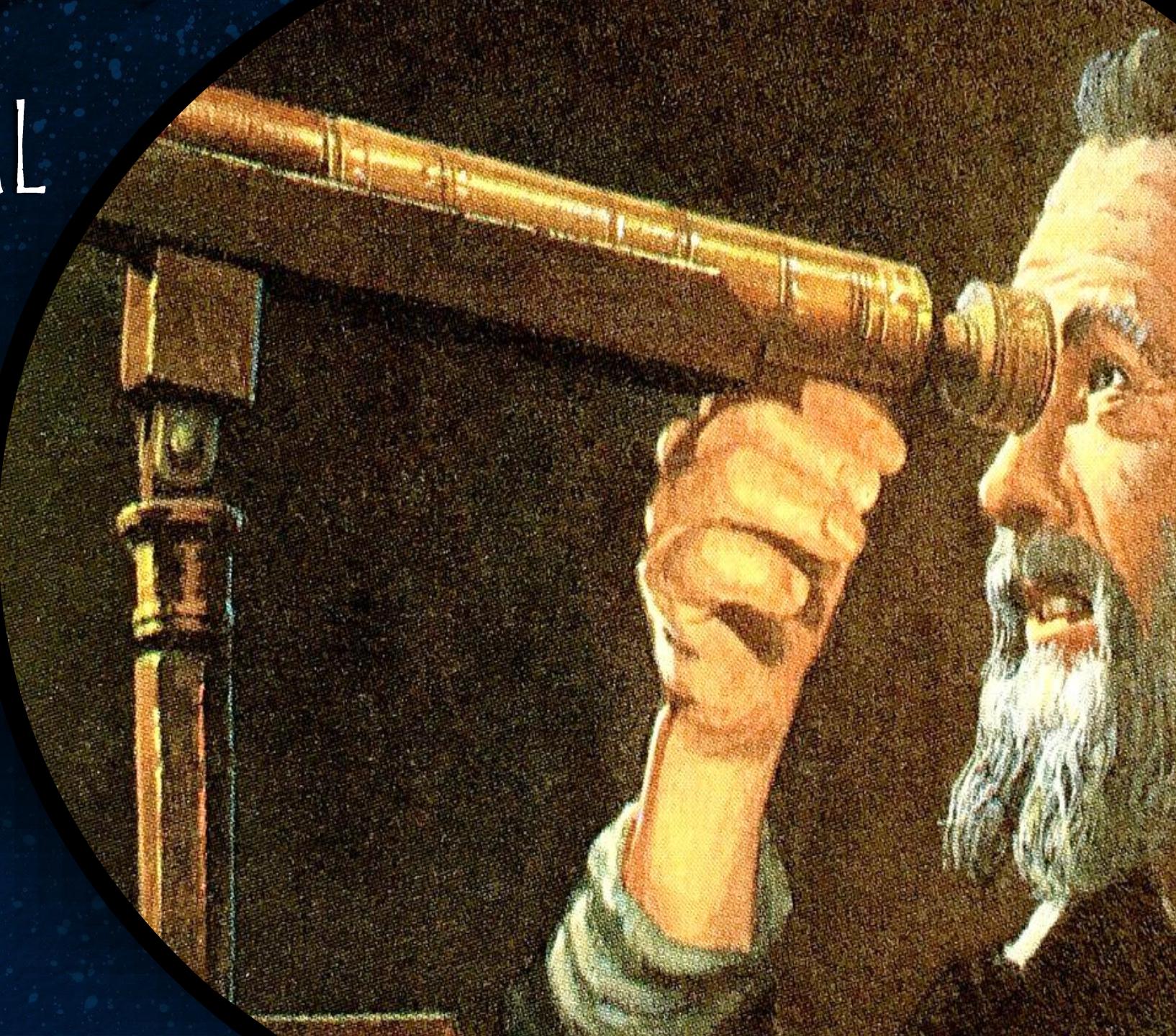
What if someone
looked from the
other side of
the Telescope?

Robert Hooke and creation of a new
field of cell Biology.

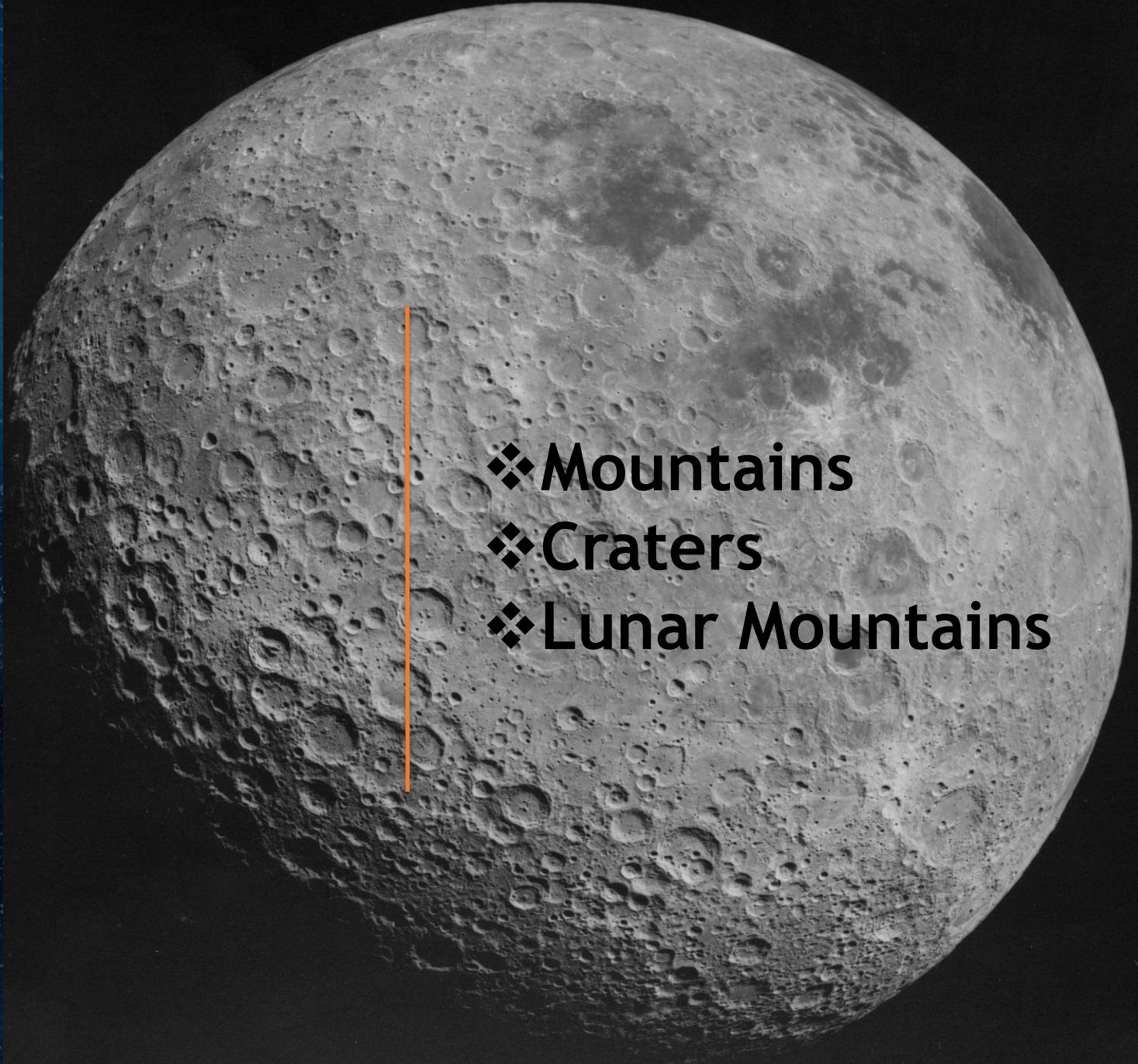


ASTRONOMICAL DISCOVERIES

- PARTH ZAREKAR



OBSERVING THE REALITY OF THE MOON

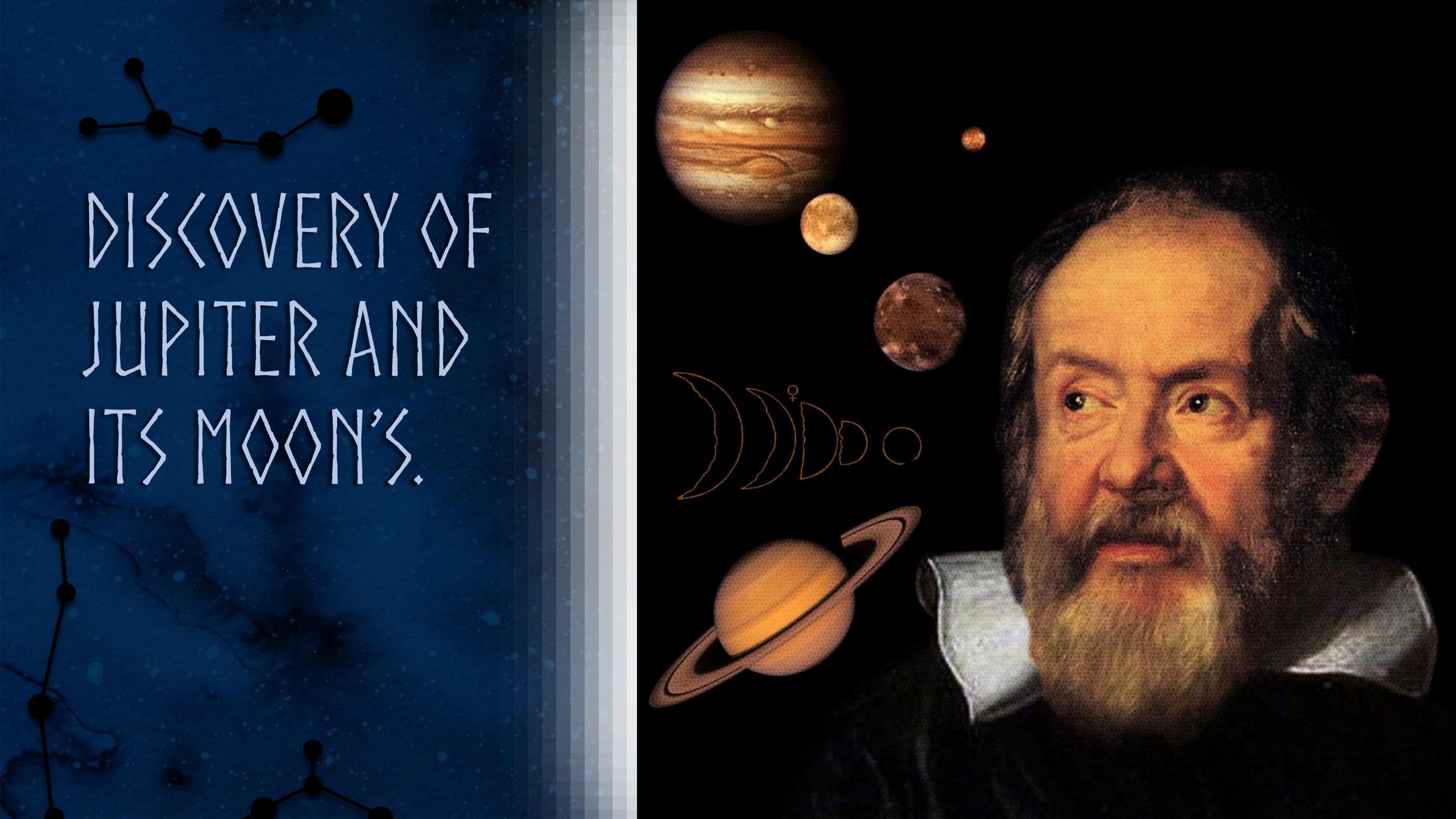


- ❖ Mountains
- ❖ Craters
- ❖ Lunar Mountains

Phases Of Venus



christillodge



DISCOVERY OF JUPITER AND ITS MOON'S.



Observations Jan 1910

2. S. mont. March 12 O **

3. mont. ** O *

2. x6n. O ** *

3. mont. O * *

3. Ho. s. * O *

4. mont. * O **

6. mont. ** O *

8. mont H. 13. * * * O

10. mont. * * * O *

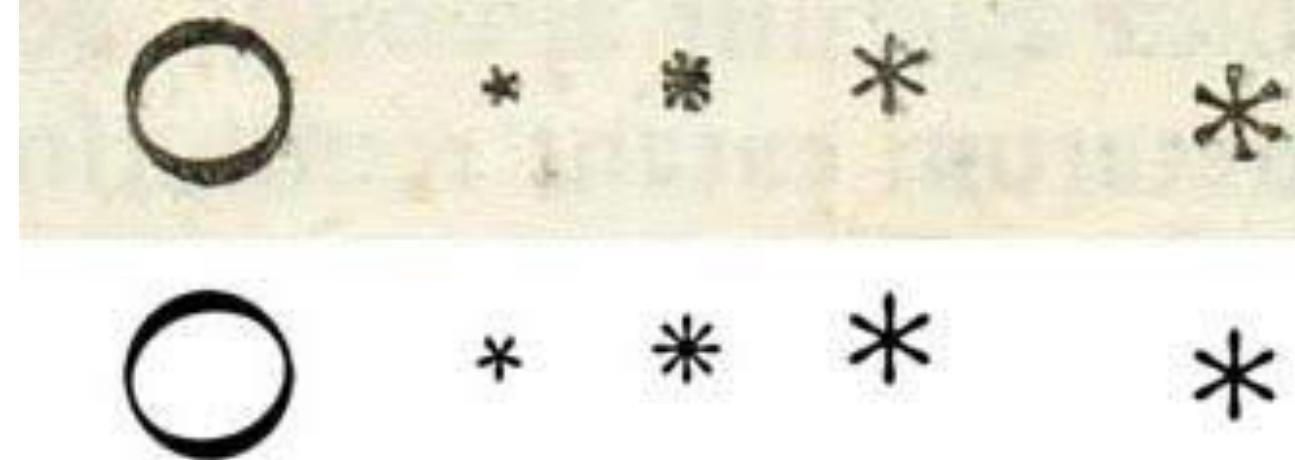
11. * * * O *

12. H. & neg. * O *

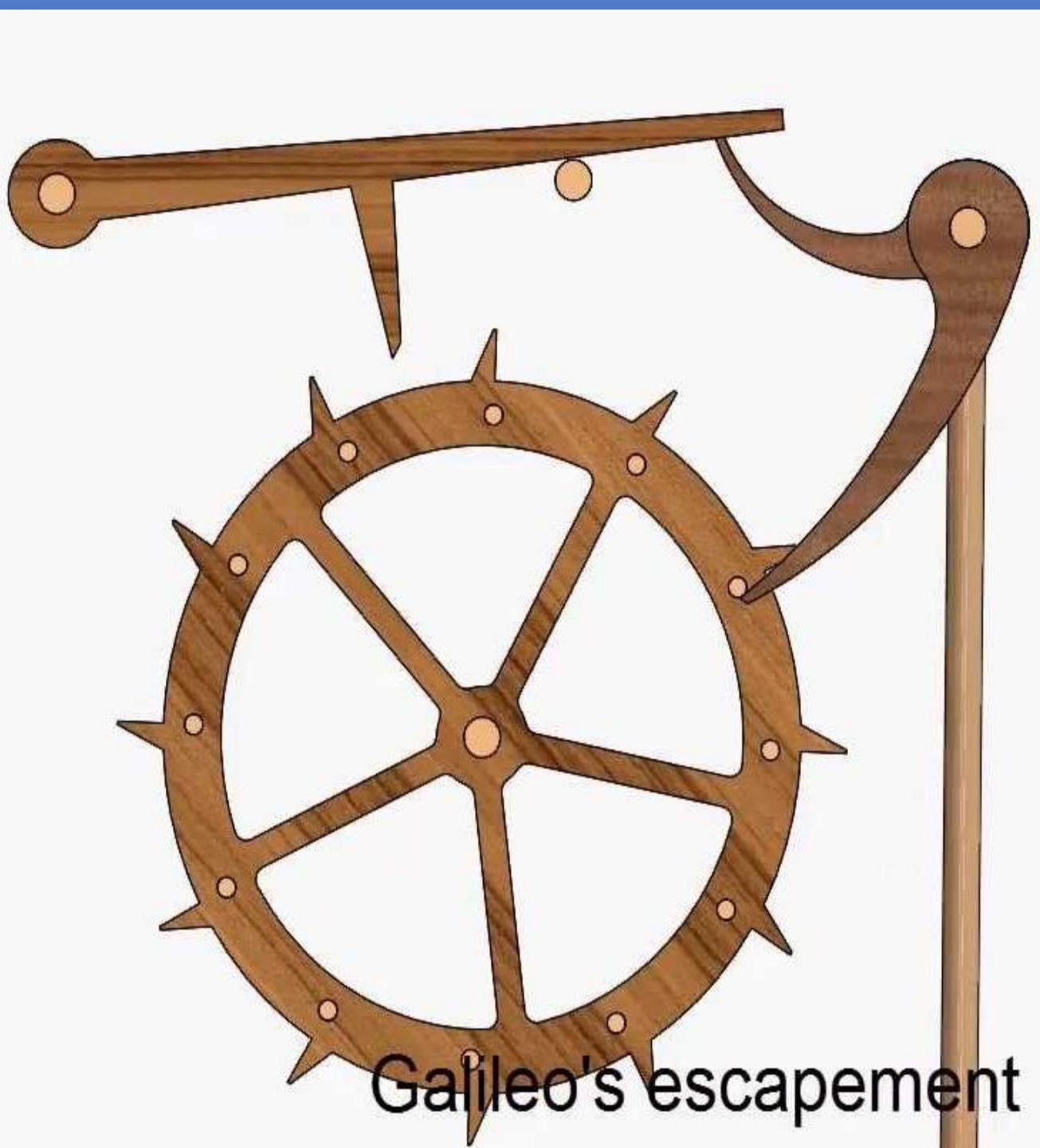
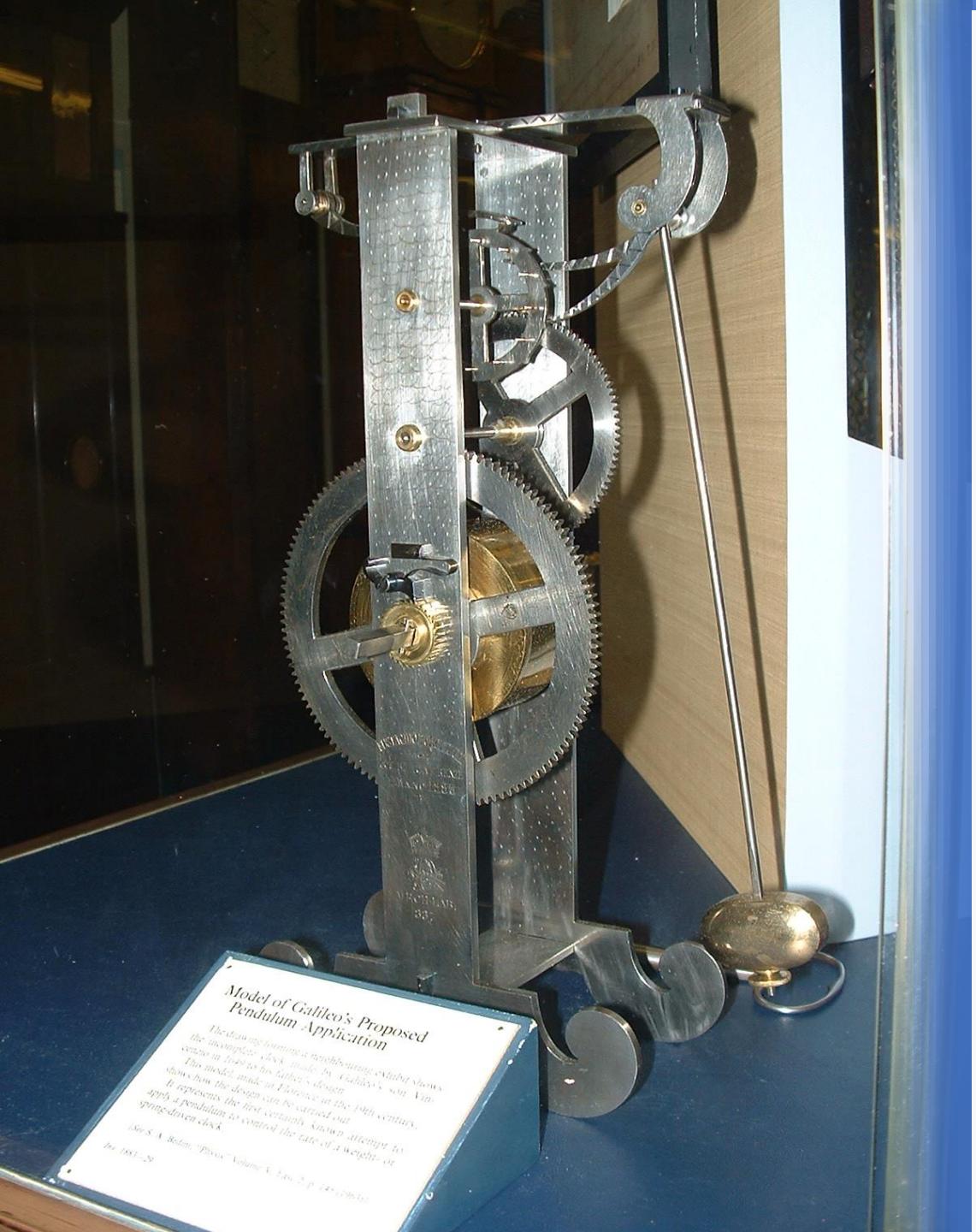
13. mont. * * O *

14. mont. * * * O *

THE DRAWINGS IN HIS NOTE

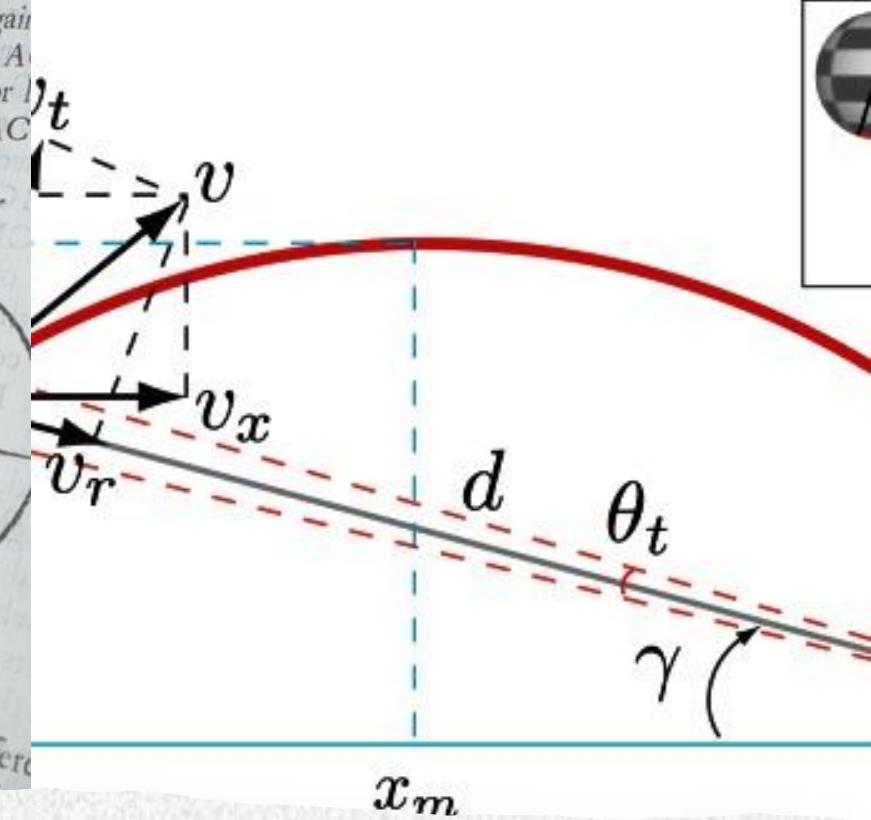
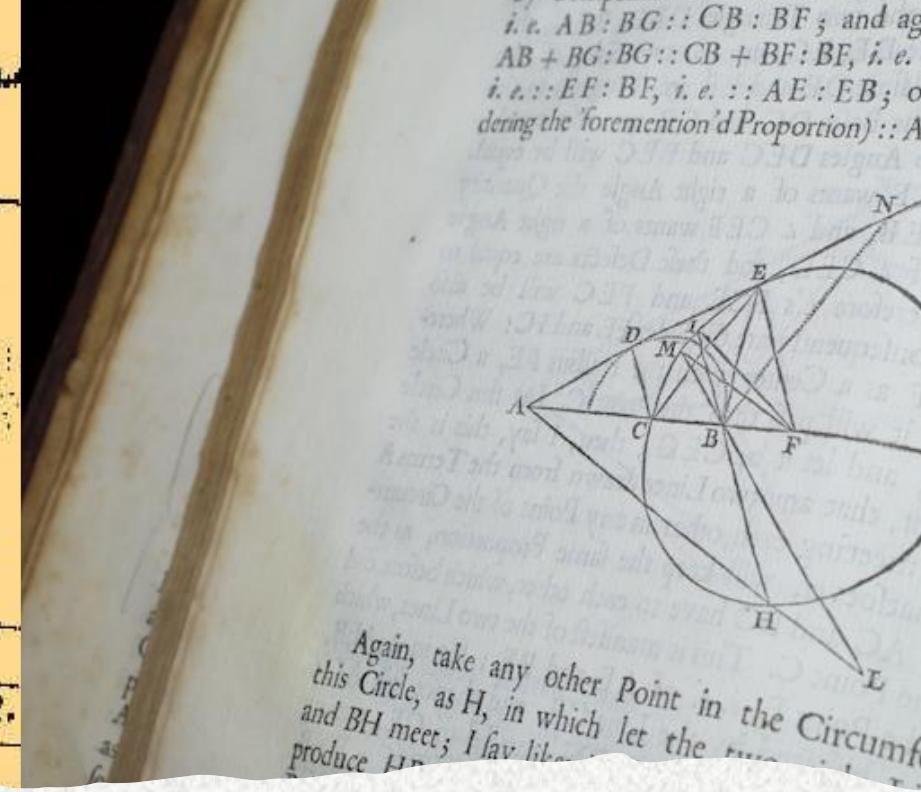
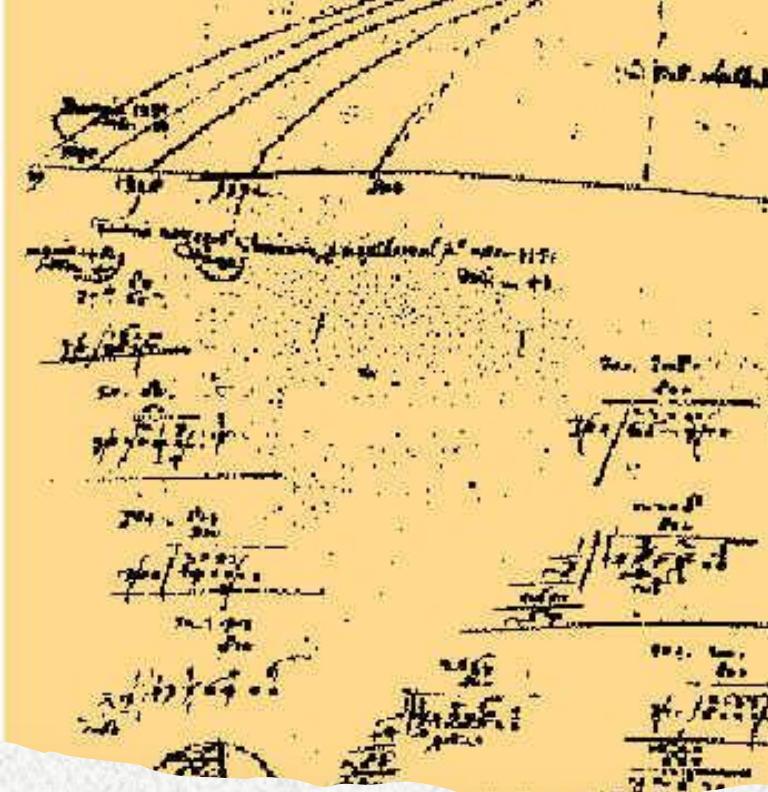






MATHEMATICAL CONTRIBUTIONS

Tirth Thesiya



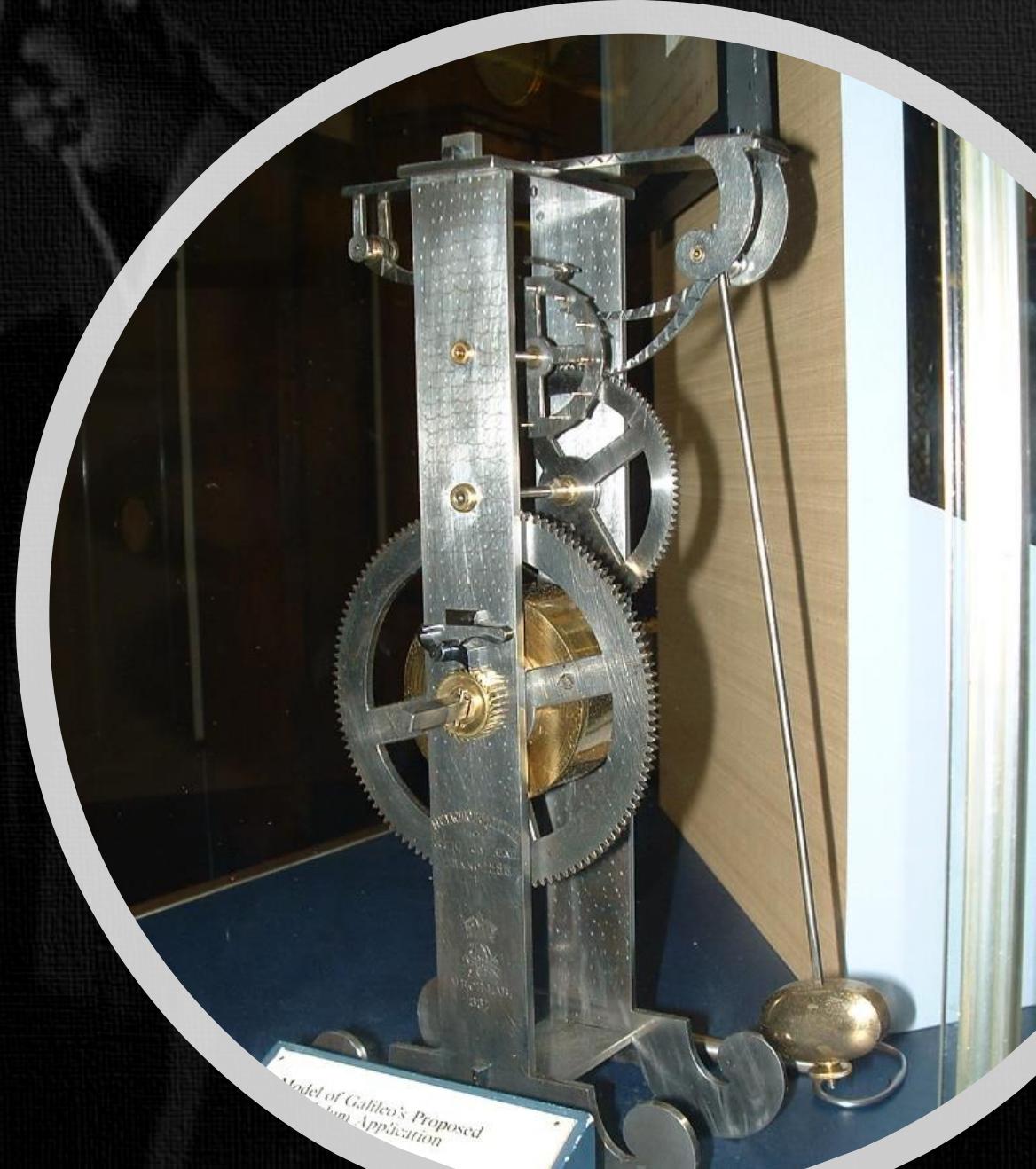
The Pendulum

Galileos clock which works on principle of pendulum .

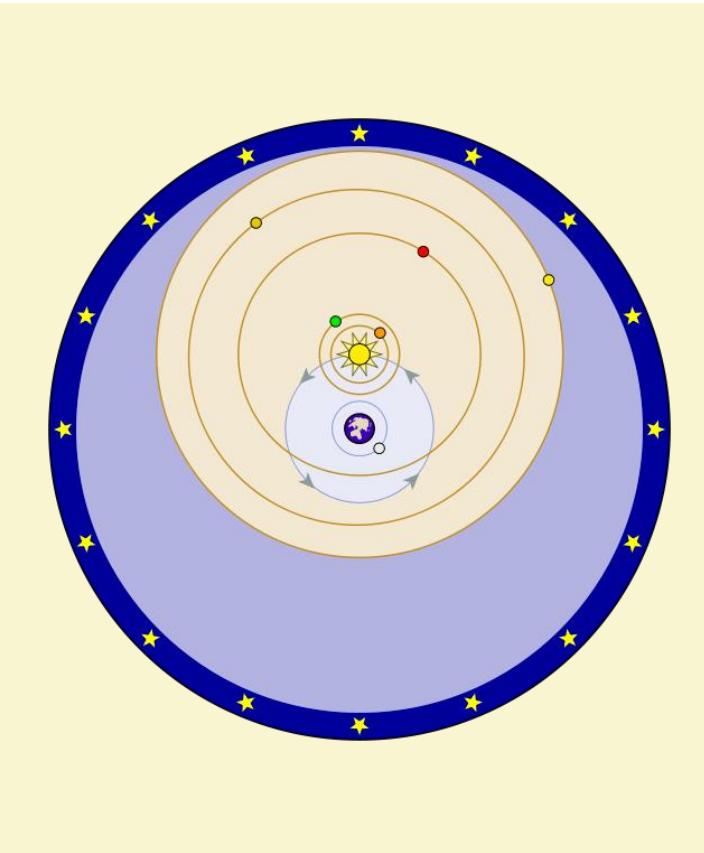
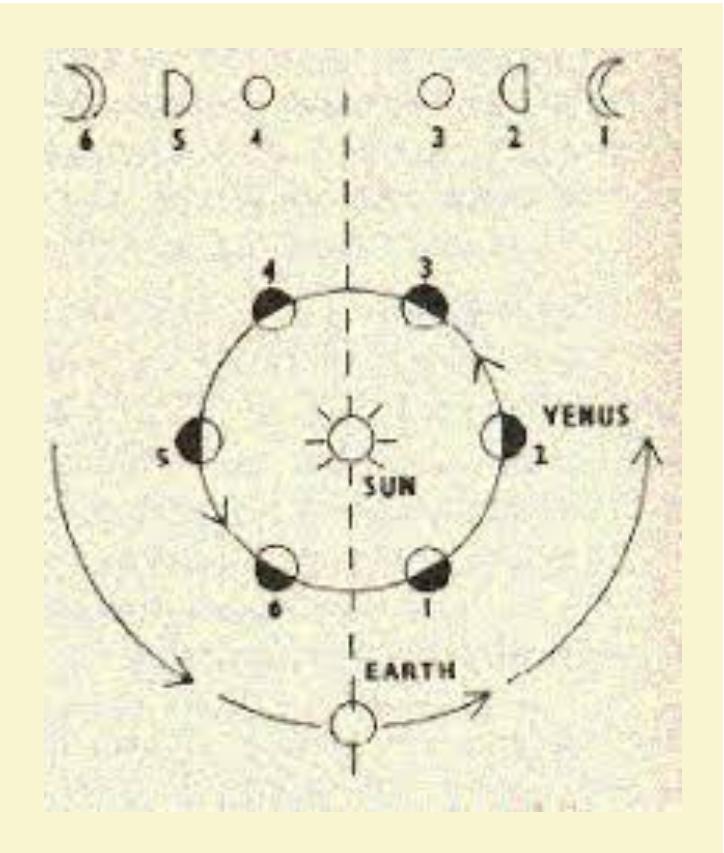
The formula for the period T of a pendulum is

$$T = 2\pi \sqrt{L/g}$$

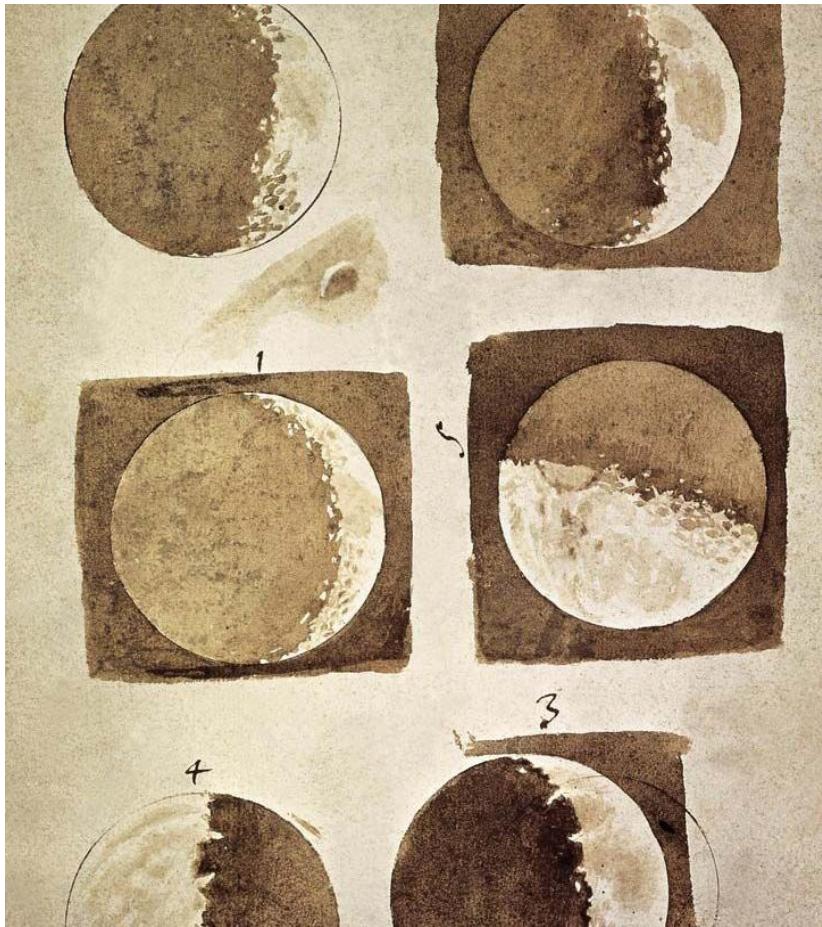
where L is the length of the pendulum and g is the acceleration due to gravity.



Mapping Venus' Phases



Galileo Galilei's observations that Venus appeared in phases -- similar to those of Earth's Moon -- in our sky was *evidence that Venus orbited the sun and contributed to the downfall of the centuries-old belief that the sun and planets revolved around Earth.*



Sez^{mo} Principe.

Galileo Galilei Humiliss.^o Servo della Ser^a V.^a inuigilando
asinduano, et co ogni spirto p^o potere no solam^e satisfare
alcaro che tiene della Lettura Di Mathematicis nelle stu-
dio Di Padoua,

S'riere d'auere determinato di presentare al Sez^{mo} Principe
l'Uchiale et t'p^o essere di gioramento insegnabile p^o ogni
regezio et impresa marittima o terrestre s'no di tenere quel-
lo nuovo artifizio nel maggior segreto et solam^e a disposizione
di S. Ser^a. L'Uchiale cauato dalle più n^e dite speculazioni di
prospettiva ha il vantaggio di insprire Legni et Vele dell'invincibil
p^o due hore et può di tempo prima ch'egli sia sopra noi et distinguendo
il numero et la qualità de i vasselli giudicare le sue forze
pallastri alla caccia al combattimento o alla fuga, o pure an^e
nella campagna aperta uedere et partularm^e Distinguere ogni suo
moto et preparamento.

Affi 7. di Genesio

Gione si uide un	*	*	*	occi:	7.	*	occi:	10.	11.
Aff 8 un	*	*	*		*	*	*	*	*
4.	***								

Aff 10. si uide in tale costituzione

*	*	*	*
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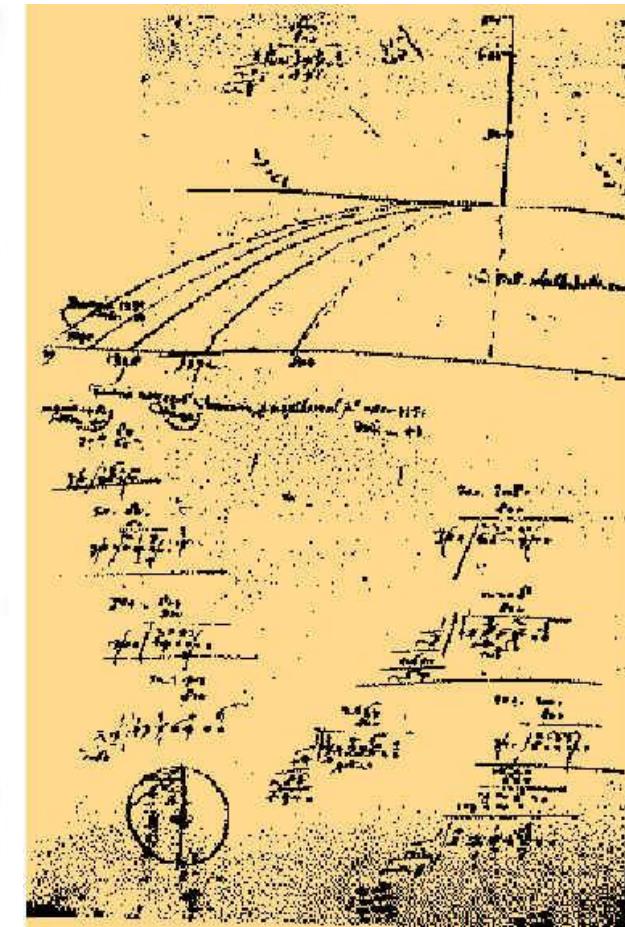
Il 13. si uide inizj: e a Gione 4 stelle *

*	*	*	*
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Aff 14^e agosto

*	*	*	*
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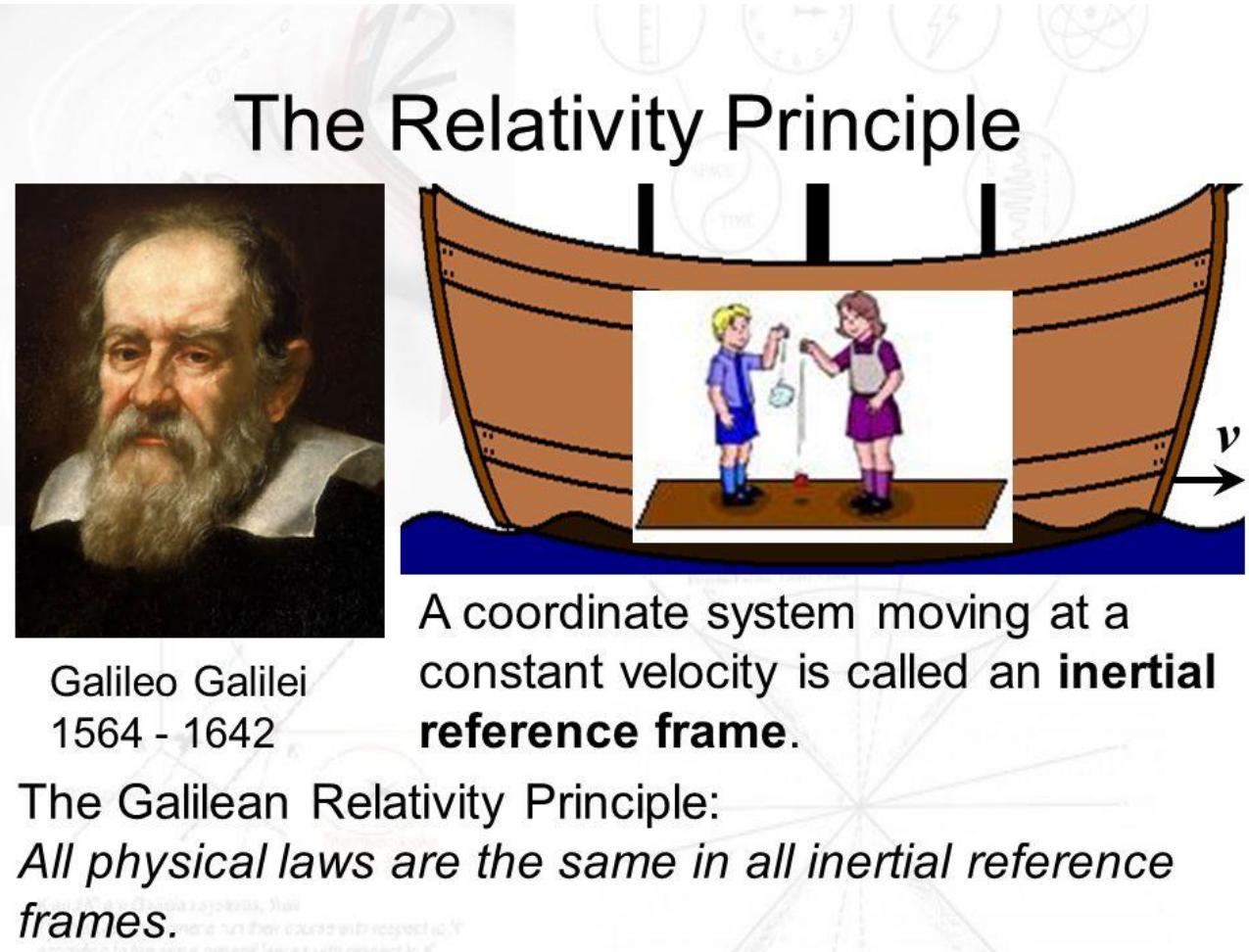
Il 15. *** * la pross^a a 4 era la m^e la 4^a era di

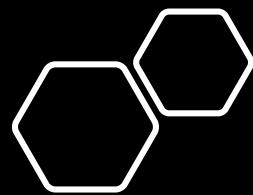


His notes

The Theory of Relativity

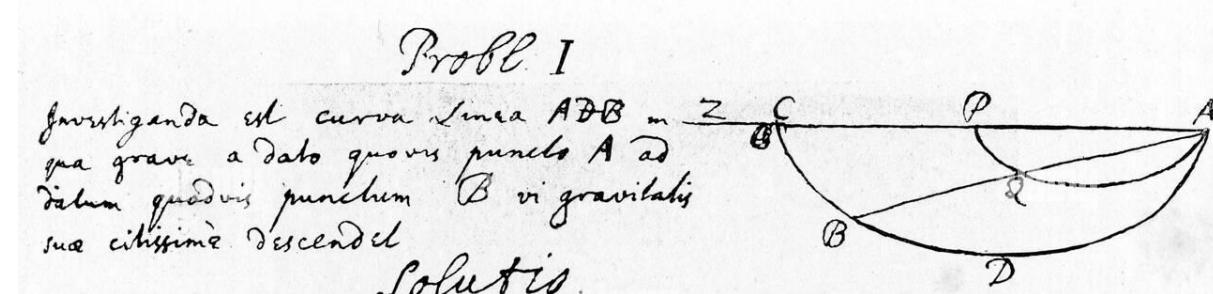
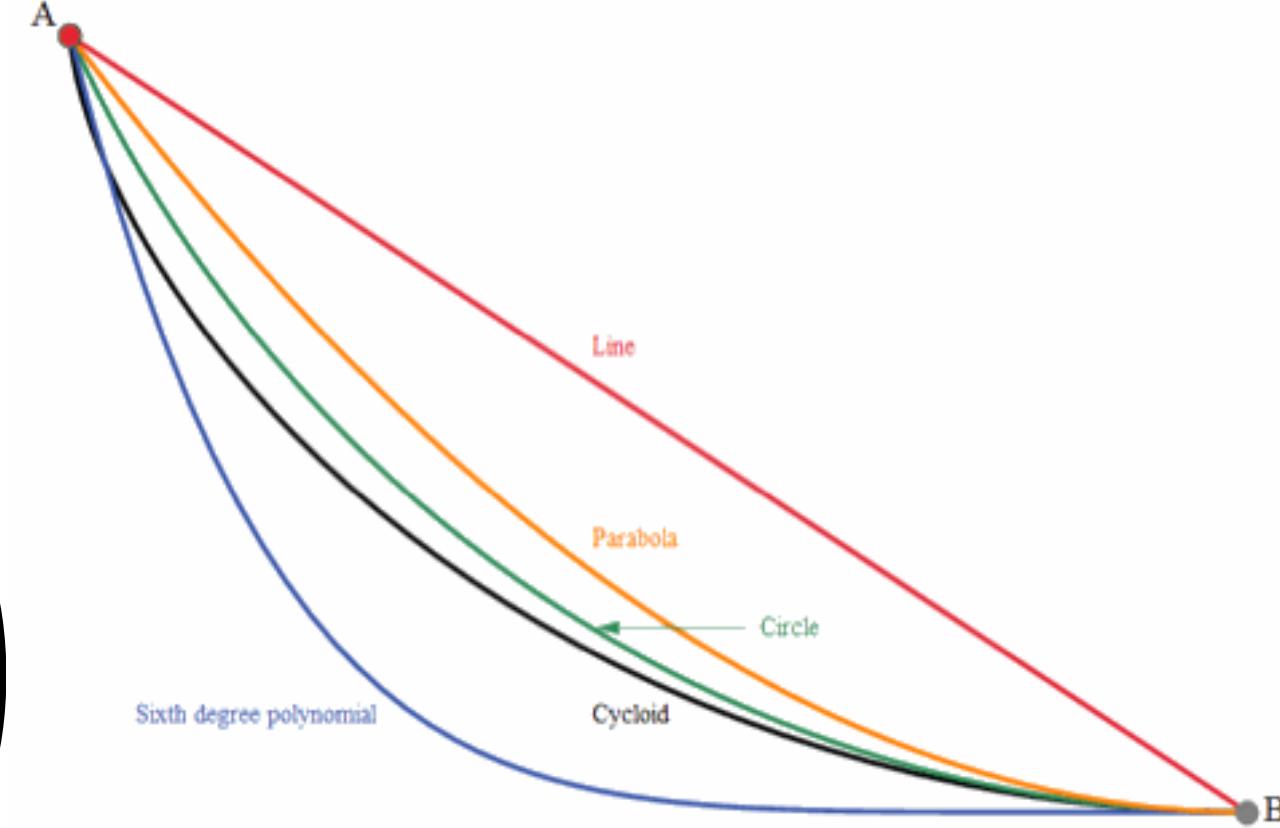
Galileo's principle of relativity states "*It is impossible by mechanical means to say whether we are moving or staying at rest*". If two trains are moving at the same speed in the same direction, then a passenger in either train will not be able to notice that either train is moving.





The Brachistochrone Problem

Brachistochrone Problem: Which path from A to B is traversed in the shortest time? This is the Brachistochrone ("Shortest Time") Problem. ... Galileo studied motion under gravity, showing that *a body falling in space traverses a distance proportional to the square of the time of descent.*



A dato puncto A ducatur recta infinita APCZ horizonte parallelis et super eadem recta describatur tum Cyclois quæcumq; AQP recte AB (recte et si opus est producatur) occurrens in puncto Q, tum Cyclois alio ADC cujus basis et altitudo sit ad prioris basem et altitudinem respetivæ ut AB ad AQ. Et haec Cyclois novissima transit per punctum B et est Curva illa linea in qua gravis a puncto A ad punctum B vi gravitatis sua celerissime perveniat. Q. E. J.

Some Interesting Facts and Conclusion

Pranaav Suratwala





HE DROPPED OUT OF UNIVERSITY



Galileo didn't invent the Telescope

We're not sure who did, although a Dutch spectacle-maker often gets the credit.

Within a year, Galileo Galilei obtained one of these Dutch instruments and quickly improved the design.

Galileo managed "to turn a popular carnival toy into a scientific instrument."

A portrait painting of Galileo Galilei, an elderly man with a long white beard and receding hairline, wearing a red robe over a dark shirt. He is looking down and to his right with a thoughtful expression. The background is dark.

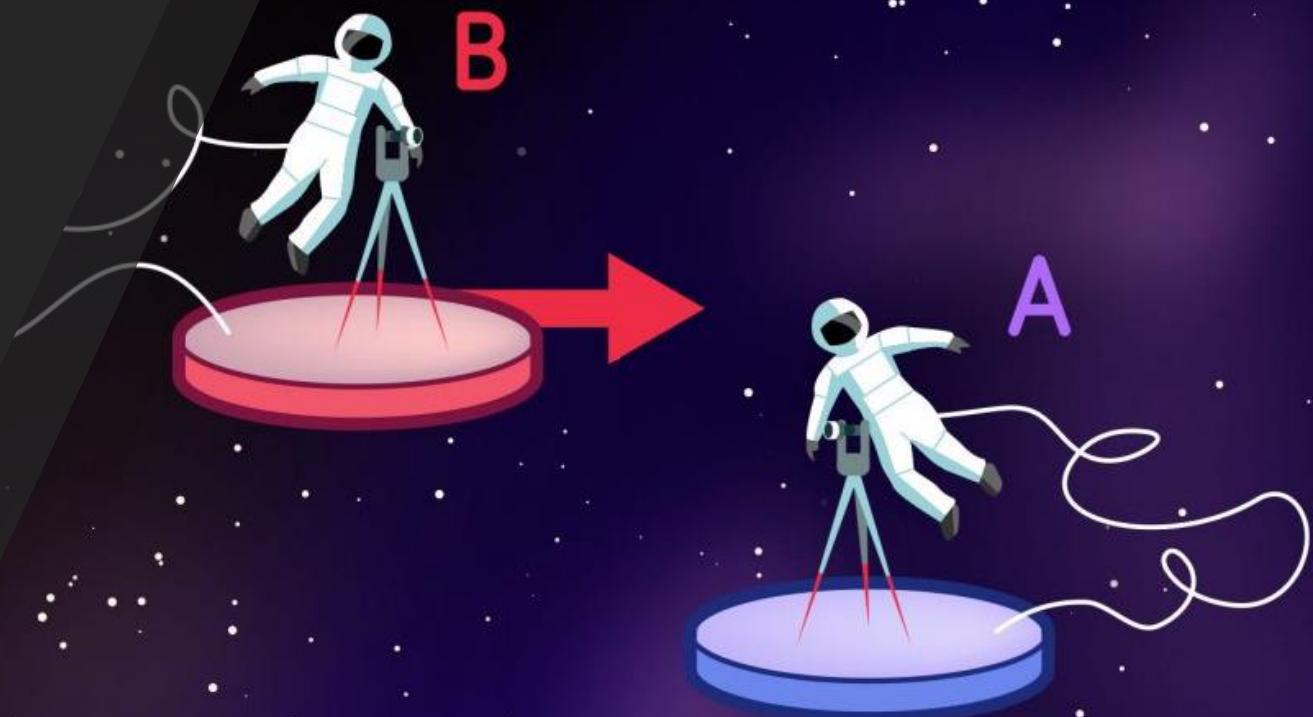
He became blind (but not by the Sun)

Galileo continued working and writing while imprisoned for heresy in his home near Florence, and during this time, his vision began to blur. By 1638, the astronomer had become completely blind.

GALILEO WROTE ABOUT RELATIVITY LONG BEFORE EINSTEIN.

He didn't write about exactly the same sort of relativity that Einstein did. But Galileo understood very clearly that motion is relative—that is, that your perception of motion has to do with your own movement as well as that of the object you're looking at.

$$\frac{g_{00}m_0}{v^2} = m_0 \left(1 + \frac{2\phi}{c^2}\right) \left(1 + \frac{2\phi}{c^2} - \frac{v^2}{c^2}\right)^{-1/2} c^2$$
$$\sqrt{g_{00} - \frac{v^2}{c^2}}$$
$$n_0 c^2 \left(1 + \frac{2\phi}{c^2}\right) \left(1 - \frac{\phi}{c^2} + \frac{1}{2} \frac{v^2}{c^2}\right)$$
$$\approx m_0 c^2 \left[\left(1 - \frac{\phi}{c^2} + \frac{1}{2} \frac{v^2}{c^2}\right) + \frac{2\phi}{c^2} - \frac{2\phi^2}{c^4} + \frac{2\phi v^2}{c^4} \right]$$



Our Team

109071. Pranav – Early Life and Introduction

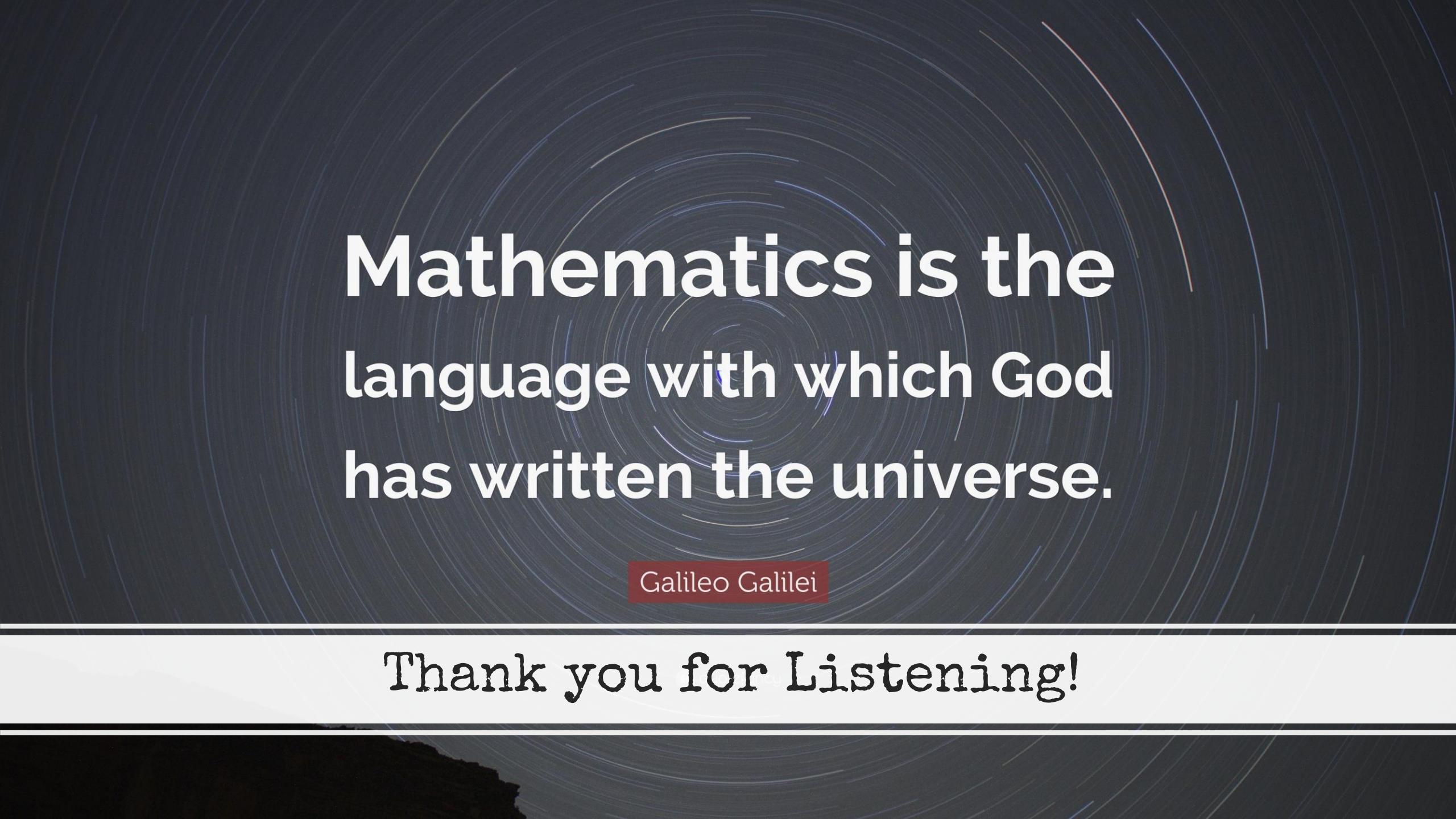
109044. Devanshu – Education and Interests

109054. Krishnaraj – Presentation and Inventions

109076. Parth – Astronomical Discoveries

109056. Tirth – Mathematical Contributions

109045. Pranaav – Interesting Facts and Conclusion



**Mathematics is the
language with which God
has written the universe.**

Galileo Galilei

Thank you for Listening!
