COMPLETE, FROM THE ITALIAN · FLORENCE, 1632

Dialogue

Concerning the Two Chief World Systems

GALILEO GALILEI



THE BOOK THAT PUT GALILEO ON TRIAL

BLUSABOOKS

BOOKS OF WISDOM

Dialogue Concerning the Two Chief World Systems

Ptolemaic and Copernican · Florence, 1632

Galileo Galilei — the book that brought him before the Inquisition: a lively, witty conversation over four days between Salviati, Sagredo and Simplicio on whether the earth moves. Complete in modern English from the Italian, with Galileo's marginal notes, the original diagrams and notes

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Modern English text, notes, foreword and commentary © 2026 SIA "Blusa Entertainment".

Source: Galileo Galilei, *Dialogo … sopra i due massimi sistemi del mondo tolemaico, e copernicano*, Florence, Giovanni Battista Landini, 1632 (first edition; copy in the Smithsonian Libraries, public domain). Rendered into modern English from the Italian, from images of the pages of the edition. The frontispiece and diagrams are from the same edition; the colour illustrations are modern.

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FOREWORD

The book that brought its author before the Inquisition. On 22 June 1633, in the convent of Santa Maria sopra Minerva in Rome, the sixty-nine-year-old Galileo Galilei publicly renounced the teaching that the earth moves. The Inquisition had found him "vehemently suspected of heresy", and the cause was a single book — this one. The *Dialogue Concerning the Two Chief World Systems, Ptolemaic and Copernican* had come out in Florence only a year earlier, with every licence the censors required. After the sentence it was banned, and it remained on the Index of Forbidden Books until the edition of 1835 (on the Index itself, see our No. 80, *The Index of Forbidden Books*). Here it is in full — all four days of the conversation, with Galileo's own marginal notes, the diagrams and the calculations.

Galileo and the telescope. Galileo Galilei was born in Pisa on 15 February 1564. He was a mathematician and physicist who studied the laws of motion by experiment, not by books alone. In 1609 he built his own telescope and turned it to the sky. The following year saw his *Starry Messenger* (*Sidereus nuncius*): the moon has mountains and valleys like the earth, four satellites circle Jupiter (Galileo named them the Medicean stars), and the Milky Way is made of countless stars. At the end of 1610 he saw that Venus has phases like the moon. In 1611 he was admitted to the Lincean Academy in Rome — which is why he proudly calls himself "Lincean" on the title page — and in 1613 his *Letters on Sunspots* appeared. Each of these discoveries undermined the ancient belief that the heavens are perfect, unchangeable and wholly unlike the earth.

The ban of 1616. Copernicus's *On the Revolutions of the Heavenly Spheres* (1543), which put the sun at the centre of the world and made the earth a planet, had been known for seventy years. On 5 March 1616 the Congregation of the

Index suspended it "until corrected" and declared the doctrine of the earth's motion contrary to Holy Scripture. Cardinal Bellarmine informed Galileo that the doctrine might be neither held nor defended. In 1623 Maffeo Barberini, once Galileo's patron, became Pope Urban VIII, and Galileo decided that he could take up the subject again. In the preface "To the Discerning Reader" he praises the decree of 1616 and promises to present the Copernican side only as a mathematical supposition, "without deciding" between the two. The reader will soon notice how far this promise is from what happens in the conversation.

Printing and trial. The book received its licence to print both in Rome (from the Master of the Sacred Palace, Niccolò Riccardi) and in Florence in September 1630. It was printed in Florence by Giovanni Battista Landini; the work was finished in February 1632, and on 21 February the first copy was presented to the Grand Duke of Tuscany, Ferdinando II de' Medici, to whom the book is dedicated. That same summer its distribution was stopped, the pope set up a special commission, and Galileo was summoned to Rome. In 1633 came the trial before the Inquisition, the sentence and the abjuration. Prison was commuted to house arrest for life: from the end of 1633 Galileo lived at his villa at Arcetri near Florence. There he wrote the *Discourses on Two New Sciences* (Leiden, 1638), in which the same three characters speak. Galileo died at Arcetri on 8 January 1642. On 31 October 1992 Pope John Paul II acknowledged that his condemnation had been a mistake.

The three speakers. The conversation takes place in Venice, in Sagredo's palace, over four successive days. Filippo Salviati (1582–1614) was a Florentine nobleman, a member of the Lincean Academy and a friend of Galileo; in the book he speaks for Copernicus and often refers to "our Academician" — that is, Galileo himself. Giovanni Francesco Sagredo (1571–1620) was a Venetian patrician who served as consul in Aleppo from 1608 to 1611; in the book he is a clever, curious and witty listener who weighs both sides with common sense. Both were dead when the book appeared — the dialogue is also a monument to them. The third, Simplicio, is an invented follower of Aristotle. His name recalls Simplicius, the

ancient commentator on Aristotle (6th century), and he defends in good faith everything the schools taught about the world.

The four days. On the First Day the speakers test Aristotle's doctrine that the heavens are unchangeable and made of a different substance from the earth, and they discuss the new stars, the sunspots and the mountains of the moon. The Second Day is about the earth's rotation on its axis: why a stone dropped from a tower falls at its very foot, why a cannon ball flies the same to the east and to the west, and why in a ship's cabin butterflies, flies and little fish behave the same whether the ship stands still or sails. The Third Day deals with the earth's annual motion around the sun: the calculations of the distance of the new star of 1572, the apparent backward motion of the planets, the phases of Venus and the drawing of the Copernican system. On the Fourth Day Galileo comes forward with what he considered his chief proof — the ebb and flow of the sea.

Where Galileo was wrong. The book is an honest witness to what was known in 1632, and so it contains mistakes too. The main one is the theory of the tides: Galileo thought that the water of the sea is set sloshing by the combination of the earth's two motions, but the tides are caused by the gravity of the moon and the sun, as Newton explained in 1687. The annual parallax of the stars, whose absence was one of the strongest objections to Copernicus, was first measured only by Bessel in 1838, and the first direct evidence of the earth's annual motion — the aberration of light — was discovered by Bradley in 1729. Galileo's "inertia" is still circular; the law of inertia in a straight line was formulated by Descartes and Newton. Kepler had published elliptical orbits as early as 1609, but Galileo does not use them in the *Dialogue*, nor does he discuss Tycho Brahe's mixed system in any detail. We have not corrected these passages in the text — the explanations are in the notes and the commentary.

How to read this book. The text is translated in full, sentence by sentence, from the first edition (Florence, 1632); the ideas of the age — spheres, elements, the "incorruptible heavens" — are left as they are. Galileo's marginal notes, printed in the margin of the original, appear here in small italics marked ▸

directly above the paragraph they stand beside. The diagrams are taken from the 1632 edition, and their letters (A, B, C) match the letters in the text; the long calculations, set in columns in the original, are shown in a frame. The footnotes are ours and are numbered from one on each page. The colour illustrations are modern. At the end of the book, the commentary gives for each day a short account in plain words, Galileo's main arguments and what we know about them today.

TITLE PAGE



Frontispiece: Aristotle, Ptolemy and Copernicus in conversation (copper engraving signed "Stefan Della Bella", 1632)

DIALOGUE OF GALILEO GALILEI, LINCEAN.[1] TO HIS SERENE HIGHNESS FERDINAND II, GRAND DUKE OF TUSCANY

DIALOGUE

OF

GALILEO GALILEI, LINCEAN,

Extraordinary Mathematician of the University of Pisa[2]

and Chief Philosopher and Mathematician

of His Serene Highness

THE GRAND DUKE OF TUSCANY,

in which, in meetings over four days, there is discussion

of the two

CHIEF SYSTEMS OF THE WORLD,

THE PTOLEMAIC AND THE COPERNICAN,

setting forth, without deciding between them, the philosophical and natural arguments for the one side as well as for the other.



The printer's device on the title page

WITH PRIVILEGES.

1 A member of the Lincean Academy (Accademia dei Lincei, Rome, founded 1603); Galileo was admitted in 1611 and proudly added the title to his name.

2 From 1610 Galileo was "extraordinary mathematician" at the University of Pisa, with no duty to lecture, and at the same time philosopher and mathematician to the Grand Duke's court.

IN FLORENCE, by Giovanni Battista Landini, MDCXXXII.

WITH LICENCE OF THE SUPERIORS.

Let it be printed[1], if it so seems good to the Most Reverend Father,
Master of the Sacred Apostolic Palace.

A., Bishop of Belcastro, Vicegerent.

Let it be printed.

Brother Niccolò Riccardi[2], Master of the Sacred Apostolic Palace.

Let it be printed in Florence, the usual procedures having been observed.
11 September 1630.

Pietro Niccolini, Vicar General of Florence.

Let it be printed, 11 September 1630.

Brother Clemente Egidi, Inquisitor General of Florence.

Let it be printed, 12 September 1630.

Niccolò dell'Altella.

1 In Latin in the original. "Imprimatur" was the Church censor's permission to print; nothing could be published in Italy without it.
2 Niccolò Riccardi (1585–1639), Master of the Sacred Palace, the Pope's chief censor; after the book appeared, Pope Urban VIII rebuked him severely for this licence.

TO THE MOST SERENE GRAND DUKE

The difference between men and the other animals, however great it may be, is perhaps matched — and whoever said so would not be speaking without reason — by a difference almost as great among men themselves. What proportion is there between one and a thousand? And yet it is a common proverb that one single man may be worth a thousand, where a thousand are not worth one. This difference comes from the different abilities of minds, and I reduce it to whether or not a man is a philosopher. For philosophy, being the proper food of minds, really does set apart whoever can feed on it from the common being of the crowd — to a higher or lower degree, according to how varied that food is. He who looks higher is set apart more highly; and to turn to the great book of Nature, which is the proper object of philosophy, is the way to lift up one's eyes. In that book, although everything we read in it, being the work of an Almighty Maker, is for that reason perfectly proportioned, the part is nonetheless clearer and worthier where the work and the craftsmanship appear greater to our sight. Among all natural things that can be grasped, the Constitution of the Universe may, in my belief, be put in first place: for if, as the universal container, it exceeds everything else in size, then as the rule and sustainer of everything it must also exceed all in nobility. Therefore, if ever anyone was granted to rise in intellect far above other men, Ptolemy[1] and Copernicus[2] were the men who read, gazed and philosophized so loftily on the Constitution of the world. Since these Dialogues of mine turn chiefly on their works, it seemed to me that they could be dedicated to no one but

1 Claudius Ptolemy (c. 100–170), astronomer of Alexandria; his "Almagest" describes the world with a motionless Earth at the centre — what is called here the Ptolemaic system.

2 Nicolaus Copernicus (1473–1543); in "On the Revolutions of the Heavenly Spheres" (1543) he placed the Sun at the centre and made the Earth a planet that turns on its axis and goes round the Sun.

Your Highness. For as their teaching rests on these two, whom I consider the greatest minds that have left us their works on such speculations, it was fitting — so as not to lessen their pre-eminence — to place them under the favour of Him who to me is the Greatest, from whom they may receive both glory and protection. And if those two have given so much light to my understanding that this work of mine may in great part be called theirs, it may equally be called Your Highness's. Through Your generous Magnificence I have not only been given leisure and quiet in which to write; through Your effective help — never tired of honouring me — it has at last been brought to light. May Your Highness therefore accept it with Your customary kindness; and if You find anything in it from which lovers of truth may draw the fruit of greater knowledge and benefit, recognize it as Your own, You who are so accustomed to doing good that in Your happy Dominion there is no one who is troubled by any of the common hardships of the world. With this, wishing You prosperity so that You may always grow in this pious and magnanimous custom, I make You my most humble reverence.

Your Most Serene Highness's

most humble and most devoted Servant and Vassal,

Galileo Galilei.

TO THE DISCERNING READER

Some years ago a salutary edict[1] was promulgated in Rome which, to forestall the dangerous scandals of the present age, imposed a timely silence on the Pythagorean[2] opinion of the mobility of the Earth. There were those who rashly asserted that the decree had been born not of judicious examination but of passion too poorly informed; and complaints were heard that advisers wholly inexperienced in astronomical observations ought not to clip the wings of speculative minds with a sudden prohibition. My zeal could not keep silent on hearing the rashness of such laments. I decided, as one fully informed about that most prudent decision, to appear publicly on the stage of the world as a witness of the plain truth. I was in Rome at the time; I had not only audiences but also the approval of the most eminent prelates of that Court; and the publication of that decree did not follow without some prior information from me. It is therefore my purpose in the present work to show foreign nations that as much is known of this matter in Italy, and particularly in Rome, as transalpine[3] diligence could ever have imagined. Gathering together all my own speculations on the Copernican system, I shall make it known that the Roman censorship was aware of all of them beforehand, and that from this land come forth not only the dogmas for the salvation of the soul but also ingenious discoveries for the delight of minds.

1 The decree of 1616 by which the Congregation of the Index suspended Copernicus's book "until corrected" and declared the motion of the Earth contrary to Scripture; compare our No. 80 "The Index of Forbidden Books".
2 The followers of Pythagoras (6th–5th c. BC); one of them, Philolaus, taught that the Earth moves around a central fire, so in Galileo's day the Copernican doctrine was called "Pythagorean".
3 Italians called the lands beyond the Alps "ultramontane" — Germany, the Netherlands, England, largely Protestant countries where Copernicanism was discussed more freely.

To this end I have taken the Copernican side in the discussion, proceeding as with a pure mathematical hypothesis and striving by every artful means to show it superior — not to the doctrine of the Earth's stability as such, but to that doctrine as defended by certain men who, Peripatetics by profession, have kept only the name and, content without walking about[1], worship shadows, philosophizing not with their own attentiveness but only with the memory of four ill-understood principles.

Three principal heads will be treated. First, I shall try to show that all experiments that can be made on the Earth are insufficient means to prove its motion, and can be fitted equally well to an Earth in motion or at rest; and I hope that here many observations unknown to antiquity will come to light. Second, the celestial phenomena will be examined, strengthening the Copernican hypothesis as though it were bound to win outright, and adding new speculations — which, however, serve for the convenience of astronomy, not for any necessity of nature. Third, I shall propose an ingenious fancy. I happened to have said, many years ago, that the unknown problem of the tides[2] might receive some light if the motion of the Earth were admitted. This saying of mine, flying from mouth to mouth, had found charitable fathers who adopted it as the offspring of their own wits. Now, so that no foreigner may ever appear who, arming himself with our own weapons, reproaches us with inattention to so important a matter, I have judged it right to reveal the probabilities that would make it persuasive, granted that the Earth moved. I hope that from these considerations the world will learn that if other nations have sailed more, we have not speculated less. And it will learn that our return to asserting the Earth's stability, taking the contrary only as a mathematical caprice, does not come from ignorance of how much others have thought about it, but — if from nothing else — from those reasons that piety, religion, the

1 The Peripatetics were Aristotle's school; the name comes from the Greek for "walking about", since Aristotle was said to teach while strolling in the colonnade of the Lyceum. Galileo is playing on the word.
2 Galileo believed the tides were caused by the Earth's double motion (on its axis and round the Sun) and took them as proof of the Copernican system. We now know that they are caused by the gravitational pull of the Moon and the Sun.

knowledge of divine omnipotence and the awareness of the weakness of the human mind supply to us.

Then I thought it would be very fitting to set out these ideas in the form of a dialogue, which, not being bound to the strict observance of mathematical laws, also gives room for digressions that are sometimes no less curious than the main argument.

Many years ago I found myself several times in the marvellous city of Venice in conversation with Signor Giovan Francesco Sagredo[1], a man most illustrious in birth and most acute in mind.

From Florence there came Signor Filippo Salviati[2], in whom the least splendour was the nobility of his blood and the magnificence of his riches — a sublime intellect, which fed on no delight more eagerly than on refined speculations. With these two I often discussed these matters in the presence of a Peripatetic philosopher, to whom, it seemed, nothing was a greater obstacle to understanding the truth than the reputation he had won by his interpretations of Aristotle.

Now, since a most bitter death has deprived Venice and Florence of those two great lights in the very brightest season of their lives, I have resolved to prolong, as far as my feeble powers allow, the life of their fame in these pages of mine, bringing them in as speakers in the present controversy. Nor shall the good Peripatetic lack his place: because of his excessive fondness for the commentaries of Simplicius[3], it seemed proper, without giving his own name, to leave him that of the revered author. May those two great souls, ever venerable to my heart, accept this public monument of my never-dying love; and with the memory of their eloquence may they help me to explain to posterity the promised speculations.

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1 Giovan Francesco Sagredo (1571–1620), Venetian patrician and diplomat, Galileo's friend and pupil during his years in Padua.
2 Filippo Salviati (1582–1614), Florentine nobleman, member of the Lincean Academy and Galileo's friend; Galileo wrote on sunspots at his villa.
3 Simplicius (6th c.), Greek philosopher and the most famous commentator on Aristotle. In Italian the name also sounds like "simpleton" — something Galileo's enemies later turned against him.