

THE PAGEANT OF PHILOSOPHY:

GALILEO GALILEI

(*Simplicio stands on a bare stage, holding a Bible. Galileo enters, bearing a rosary and a sign that reads, “Galileo Galilei, 1564-1642.” He seems surprised to see Simplicio.*)

Galileo: Where did you come from?

Simplicio: Me? Well... that’s a little hard to explain.

Galileo: What are you doing here? How did you get in here? I’m under house arrest, child, and am not supposed to be receiving visitors.

Simplicio: Oh, I’m sorry, sir. I’m here because I’m looking for truth.

Galileo: (*peers around to see if anyone is listening, then relaxes*) Truth, is it? In that case, you’re welcome, however you managed to sneak in. My name is Galileo Galilei, and I’m locked up here because nobody else seems to be interested in the truth.

Simplicio: I’m pleased to meet you, Mr. Galilei, sir. My name is Simplicio.

Galileo: (*startled*) Your name is Simplicio? How odd! I wrote a book once, with a character named Simplicio.

Simplicio: Really? I’ve never met anyone with my name before. Could I see the book?

Galileo: I’m afraid not, child. I’m not allowed to keep a copy of it.

Simplicio: You aren’t allowed to keep a copy of your own book?

Galileo: No, because it is the book that got me into so much trouble. You see, after I published my *Dialogue Concerning the Two Chief World Systems*, I was put on trial for heresy.

Simplicio: I’m not sure I know what you mean by the “two chief world systems.” What are they?

Galileo: The first is the theory that the sun goes around the earth. It was invented by the great Greek, Ptolemy, supported by the great philosopher Aristotle, and upheld by Saint Thomas Aquinas and all the doctors of the church.

Simplicio: Well, of course! The sun does go around the earth. How else could it rise and set?

Galileo: There is another way! What if the sun sits still and the earth itself turns round?

Simplicio: How can that be?

Galileo: Here, let me demonstrate. First I will show you how Ptolemy’s theory works. You be the earth, and I will be the sun. You stand still, and I will go in circles around you. (*walks around Simplicio*) See how I’m “rising” and “setting”?

Simplicio: Sure. That’s the way it works!

Galileo: Does it? Now let me stand still, and you spin in circles. (*Simplicio turns*) Try not to get dizzy!

Simplicio: I see what you mean—sort of. I can see you “rising” and “setting” this way, too.

Galileo: The Polish mathematician Copernicus has suggested that everything we see in the heavens can be explained more simply if we just assume the earth moves, instead of the sun. That is the other “chief world system” I wrote about.

Simplicio: (*stops spinning*) It seems a bit far-fetched to me. (*jumps up and down gently*) The earth looks pretty stable. It seems hard to believe that it could move!

Galileo: That is true, but have you ever been aboard a large ship? When it glides through smooth water, you can forget that you are even moving. The earth is a lot bigger than a ship, and the heavens are smoother than any sea. You cannot tell by “feeling” whether the earth is moving or standing still.

Simplicio: Yes, I see what you mean. It’s an interesting idea, but if you can’t tell whether the earth is moving or standing still, it doesn’t seem to make a lot of difference. It certainly doesn’t seem like a thing that people should get locked up for!

Galileo: Ah, but my church, the Roman Catholic Church, says it is heretical to suggest that the earth moves.

Simplicio: Why would they do that?

Galileo: It conflicts with Aristotle’s teaching, which Aquinas relied on for his theology.

Simplicio: So, was Copernicus a heretic?

Galileo: Copernicus published his theory many years ago, in 1543, and nobody called it a heresy then. Of course, he said his theory was just a mathematical hypothesis, which he dedicated to the pope. My problem is that I think he was *right*.

Simplicio: So it’s okay to publish a “mathematical hypothesis” as long as you don’t actually believe it?

Galileo: Apparently so. I tried to do the same in my *Dialogue Concerning the Two Chief World Systems*. I wrote in my book, “**I have taken the Copernican side in the discourse, proceeding as with a pure mathematical hypothesis and striving by every artifice to represent it as superior to supposing the earth motionless.**”¹ It got me tried and convicted for heresy.

Simplicio: (*heatedly*) That’s not fair!

Galileo: Ah, but you see, child, I had been stirring up controversy for quite a while, ever since **some years ago when I discovered in the heavens many things that had not been seen before our own age. The novelty of these things, as well as some consequences which followed from them in contradiction to the physical notions commonly held among academic philosophers, stirred up against me no small number of professors—as if I had placed these things in the sky with my own hands in order to upset nature and overturn the sciences.**²

Simplicio: Wait, sir—things in the heavens? What sort of things? How did you discover them?

Galileo: Have you not heard about the marvelous things I saw through the telescope? I was the first to see satellites around Jupiter, mountains on the moon, spots on the sun, and the phases of Venus. Each of these wonders rocked the general agreements about the nature of the universe.

Simplicio: How so?

Galileo: The satellites of Jupiter astonished the astronomers and physicists, because everyone knows that the heavenly bodies are made of *quintessence*, the fifth element, which differs from the other four (earth, air, fire, and water) in that it always moves in perfect circles around the center of the earth.

Simplicio: And satellites of Jupiter couldn’t be made of quintessence?

Galileo: If they were made of quintessence, or *ether*, as it also known, they would travel in perfect circles about the earth—but these bodies travel around Jupiter, the king of the planets!

Simplicio: Oh! That is a puzzle.

Galileo: How can the sun, which is perfect and immutable, have blemishes upon its face like a young man? How can a moon made of ether have mountains made of earth? How can Venus wax and wane like the moon does?

Simplicio: Those are good questions, sir. What did your opponents say?

Galileo: Say? (*bitterly*) **Showing a greater fondness for their own opinions than for truth they sought to deny and disprove the new things which, if they had cared to look for themselves, their own senses would have demonstrated to them.**³

Simplicio: I guess that’s what Sir Francis Bacon would have called the “idols of the theater.”

¹ Galileo, *Dialogue Concerning the Two Chief World Systems*, Stillman Drake, trans. (New York: Random House, 2001) 5-6.

² Galileo, *Letter to the Grand Duchess Christina*, in *Discoveries and Opinions of Galileo*, Stillman Drake, trans. and ed. (New York: Doubleday Anchor Books, 1957) 175.

³ *Ibid.*

Galileo: I do not know this Bacon, you refer to, but “idolatry” would be a good word for their blind zeal for their old ideas. **To this end they hurled various charges and published numerous writings filled with vain arguments, and they made the grave mistake of sprinkling these with passages taken from places in the Bible which they had failed to understand properly, and which were ill-suited to their purposes.**¹

Simplicio: (*looking down at his Bible*) Doesn't the Bible say the sun moves and the earth stands still?

Galileo: Well, there is one passage I have heard often enough to quote from memory: **“Then spake Joshua to the Lord in the day when the Lord delivered up the Amorites before the children of Israel, and he said in the sight of Israel, Sun, stand thou still upon Gibeon; and thou, Moon, in the valley of Ajalon. And the sun stood still, and the moon stayed, until the people had avenged themselves upon their enemies. Is not this written in the book of Jasher? So the sun stood still in the midst of heaven, and hasted not to go down about a whole day.”**²

Simplicio: (*slowly*) So then the Bible does say the sun moves around the earth. Or are you saying the Bible is not true?

Galileo: No, it is true! But that does not mean it is a science book. As Cardinal Baronius has said, **“The intention of the Holy Ghost is to teach us how one goes to Heaven, not how heaven goes.”**³

Simplicio: I guess that might be so. Now that you come to mention it, I can't see why it would be otherwise.

Galileo: (*looks shocked*) Be careful, child! (*whispering*) The walls have ears! (*looks around for eavesdroppers, then continues*) What I say is not against the church, if they would only see it. I have higher church authority on my side than just the word of one cardinal. Consider what Saint Augustine said: “One does not read in the Gospel that the Lord said: ‘I will send you the Paraclete who will teach you about the course of the sun and moon.’ For he willed to make them Christians, not mathematicians.”

Simplicio: Yes, but Joshua said, “Sun, stand still.” You don't have to be a mathematician to know what that means!

Galileo: Don't you? Saint Augustine warned Christians not to jump to conclusions about such matters. He said **we ought not to believe anything inadvisedly on a dubious point, lest in favor to our error we conceive a prejudice against something that truth hereafter may reveal to be not contrary in any way to the sacred books of either the Old or the New Testament.**⁴

Simplicio: What?

Galileo: He said our eagerness to defend our understanding of Scripture might prejudice us against something true. And, as it happens, my earlier controversial discoveries have been generally accepted by everyone with an open mind.

Simplicio: You mean people have begun to agree with you now?

Galileo: Some do. **Men who were well grounded in astronomical and physical science were persuaded as soon as they received my first message. There were others who denied them or remained in doubt only because of their novel and unexpected character, and because they had not yet had the opportunity to see for themselves. These men have by degrees come to be satisfied.**⁵

Simplicio: But some don't agree?

Galileo: Sadly, no. The ones who cannot prove me wrong and will not listen to reason devote themselves to despising me. I fear these now **divert their thoughts to other fancies and seek new ways to damage me.**⁶

Simplicio: That's too bad!

Galileo: Yes, and what is worse is that they have abandoned any effort to prove me wrong by the observable facts or sound logic, and have instead **resolved to fabricate a shield for their fallacies out of the mantle of pretended religion and the authority of the Bible. These they apply with little judgment to the refutation of arguments that they do not understand and have not even listened to.**⁷

1 Ibid.
2 Joshua 10:12-13 (KJV)
3 Ibid., 186.
4 Ibid., 176.
5 Ibid.
6 Ibid.
7 Ibid., 177.

Simplicio: That seems unfair!

Galileo: It is unfair, and terribly damaging. They have endeavored to spread the opinion that such propositions in general are contrary to the Bible and are consequently damnable and heretical.¹ Yet the author of this theory, or rather its restorer and confirmer, was Nicholas Copernicus; and he was not only a Catholic, but a priest and a canon. He was in fact so esteemed by the church that when the Lateran Council under Leo X took up the correction of the church calendar, Copernicus was called to Rome from the most remote parts of Germany to undertake its reform.²

Simplicio: Yes, but even priests can become heretics.

Galileo: True, but he dedicated this book *On the Celestial Revolutions* to Pope Paul III. When printed, the book was accepted by the holy Church, and it has been read and studied by everyone without the faintest hint of any objection ever being conceived against its doctrines.³ Which is where we started from—the only crime, apparently is to believe such things as true! (*sighs deeply*) Now they have gone and banned Copernicus' book and locked me up in my own home. I am surprised that nobody has come to run you out yet.

Simplicio: I could understand the church saying that it was wrong to believe in these mathematical theories instead of the Bible.

Galileo: I think the greater wrong is to condemn something **without understanding it, weighing it, or so much as reading it.**⁴ Copernicus **did not ignore the Bible, but he knew very well that if his doctrine were proved, then it could not contradict the Scriptures when they were rightly understood.**⁵

Simplicio: What do you mean by “rightly understood”? Do you mean he could twist the Scriptures to support whatever conclusions he made?

Galileo: No, lad, not at all! The Scriptures should not be used to support just anything, but they will always support the truth. They must! I say **that the holy Bible can never speak untruth—whenever its true meaning is understood. But I believe nobody will deny that it is often very abstruse, and may say things which are quite different from what its bare words signify.**⁶

Simplicio: Don't you believe the “bare words,” though?

Galileo: If I did, I would be a heretic!

Simplicio: How can that be?

Galileo: If one were always to confine oneself to the unadorned grammatical meaning, one might fall into error. **Not only contradictions and propositions far from true might thus be made to appear in the Bible, but even grave heresies and follies. For example, it would be necessary to assign to God feet, hands, and eyes, as well as corporeal and human affections, such as anger, repentance, hatred, and sometimes even the forgetting of things past and ignorance of those to come.**⁷

Simplicio: Why would the Bible say such things if they aren't true?

Galileo: I am not saying they are not true in any sense, just that God uses limited human language to get His ideas across to limited human minds. **These propositions uttered by the Holy Ghost were set down in that manner by the sacred scribes in order to accommodate them to the capacities of the common people, who are rude and unlearned.**⁸ The Roman Catholic Church has long believed that **wise expositors should produce the true senses of such passages, together with the special reasons for which they were set down in these words. This doctrine is so widespread and so definite with all theologians that it would be superfluous to adduce evidence for it.**⁹

1 Ibid.
2 Ibid., 178.
3 Ibid., 178-79.
4 Ibid., 179.
5 Ibid., 179-80.
6 Ibid., 181.
7 Ibid.
8 Ibid.
9 Ibid., 181-82.

Simplicio: I don't suppose that Martin Luther and the other Protestants would agree with that—having only “wise expositors” interpret Scriptures.

Galileo: (*scoffs*) Luther! He and I would agree on almost nothing. Luther said Copernicus was a fool who would **turn the whole science of Astronomy upside down. But as Holy Writ declares, it was the Sun and not the Earth which Joshua commanded to stand still.**¹ And John Calvin was no more open-minded. He said that those who assert that the earth moves and turns are “**motivated by a spirit of bitterness, contradiction, and faultfinding,**”² are possessed by the devil, and aim “**to pervert the order of nature.**”³ But Catholics should not let the opinion of such heretics influence their thinking!

Simplicio: Still, it seems like you want to interpret the Bible to fit your theories, and not vice versa.

Galileo: Not my theories, child. I want to interpret the Bible in light of nature. You see, **it is necessary for the Bible, in order to be accommodated to the understanding of every man, to speak many things which appear to differ from the absolute truth so far as the bare meaning of the words is concerned. But Nature, on the other hand, is inexorable and immutable; she never transgresses the laws imposed upon her, or cares a whit whether her abstruse reasons and methods of operation are understandable to men.**⁴

Simplicio: Oh! You mean that Scripture speaks in human words, but nature does not?

Galileo: That's it. Nature speaks the pure language of mathematics, which many cannot or will not understand. Human words are flexible, and capable of many meanings. Mathematics is not! You see, **the Bible is not chained in every expression to conditions as strict as those which govern all physical effects.**⁵

Simplicio: That makes sense—the Bible is more concerned with telling a story about God than teaching science.

Galileo: I believe that God is no less **excellently revealed in Nature's actions than in the sacred statements of the Bible. Perhaps this is what the great church father Tertullian meant by these words: “We conclude that God is known first through Nature, and then again, more particularly, by doctrine, by Nature in His works, and by doctrine in His revealed word.”**⁶

Simplicio: (*looking down at his Bible*) Do we really need this, then? Could we get by with what we know about God from nature?

Galileo: Not at all! I do not mean to imply **that we need not have an extraordinary esteem for the passages of holy Scripture. On the contrary, having arrived at any certainties in physics, we ought to utilize these as the most appropriate aids in the true exposition of the Bible and in the investigation of those meanings which are necessarily contained therein, for these must be concordant with demonstrated truths.**⁷ But we will always need the Bible to bring us the good news that Nature could never reveal. For my part, **I should judge that the authority of the Bible was designed to persuade men of those articles and propositions which, surpassing all human reasoning, could not be made credible by science, or by any other means than through the very mouth of the Holy Spirit.**⁸

Simplicio: That makes sense but doesn't this all mean that you will just reinterpret Scripture every time somebody comes up with a new theory?

Galileo: Not exactly. I would not try to do so if I had no need of it—but I hope I would not be averse to reinterpretation if new facts compelled me to it.

Simplicio: But how are you supposed to tell the difference?

Galileo: Through reason, child! Reason and Scripture should never have to be enemies. Or do you suppose the same **God who has endowed us with senses, reason and intellect has intended us to forego their use?** Would God

1 Quoted from Nicolaus Copernicus, “On the Revolutions of the Heavenly Spheres” (Chicago: Encyclopedia Britannica, 1952) 490.

2 John Calvin, sermon 8 on 1 Corinthians, 677, in *John Calvin: A Sixteenth Century Portrait*, by William J. Bouwsma (New York: Oxford U.P., 1988) 72.

3 Ibid.

4 Ibid., 182.

5 Ibid., 183.

6 Ibid.

7 Ibid.

8 Ibid.

require us to deny sense and reason, in physical matters which are set before our eyes and minds by direct experience or necessary demonstrations?¹

Simplicio: I—I guess not.

Galileo: Indeed not! Consider what Saint Augustine said: **‘If anyone shall set the authority of Holy Writ against clear and manifest reason, he who does this knows not what he has undertaken; for he opposes to the truth not the meaning of the Bible, which is beyond his comprehension, but rather his own interpretation, not what is in the Bible, but what he has found in himself and imagines to be there.’**²

Simplicio: (*thinking*) So the Bible itself, when rightly understood, will never contradict the truth of reason.

Galileo: Exactly. That is the blessed freedom of our field—if only our church would see it! But they will not. (*sighs deeply*) Instead they bind themselves to dead superstition that will not allow the Christian to revel in the truths created by his God, and so condemn themselves to irrelevancy in the new age of thinking men. They will not be able to force the world to comply forever. That is why I sit here now, under arrest—I will not contradict my God-given reason and deny that the earth moves!

Simplicio: Tell me, sir—since this has been very helpful—what should Christians do, then, if some new theory seems to conflict with Scripture?

Galileo: Christian thinkers should discern between theories that have been proven true and those that are merely speculative. **In the books of the sages of this world there are contained some physical truths which are soundly demonstrated, and others that are merely stated; as to the former, it is the office of wise divines to show that they do not contradict the holy Scriptures. And as to the propositions which are stated but not rigorously demonstrated, anything contrary to the Bible involved by them must be held undoubtedly false and should be proved so by every possible means.**³

Simplicio: So Christians should try to prove physical theories false?

Galileo: Either false or *unproven*. But they should do this by using logic, mathematics, and physics, not just by quoting the Bible. Indeed, the Christian who doubts a physical theory because it conflicts with Scripture is the best man to prove it wrong, **for those who believe an argument to be false may much more easily find the fallacies in it than men who consider it to be true and conclusive.**⁴ But listen—did you hear footsteps?

Simplicio: I don't hear anything, sir.

Galileo: We must be sure to listen carefully. (*peers around, then whispers*) The church has banned this theory and locked me away in my own home in an effort to suppress what I say, but this is folly. **To carry out such a decision it would be necessary not only to prohibit the book of Copernicus and the writings of other authors who follow the same opinion, but to ban the whole science of astronomy.**⁵

Simplicio: I suppose the pope *could* try to do that, though, if he wanted to.

Galileo: God forbid! **To prohibit astronomy would be to censure a hundred passages of holy Scripture which teach us that the glory and greatness of Almighty God are marvelously discerned in all his works and divinely read in the open book of heaven.**⁶ (*stops and listens to a distant noise*) Child, I hear someone coming. You had better leave immediately!

Simplicio: But I'm still looking for truth, and you have so much to tell me!

Galileo: If you want to be free in order to keep looking, Simplicio, you must go now! I will remember you in my prayers, boy. May the God of all truth be with you. Now—go!

(*Simplicio reluctantly backs away. Galileo takes up his rosary and begins counting the beads as he prays. Curtain.*)

1 Ibid., 183-84.

2 Ibid., 186.

3 Ibid., 194.

4 Ibid., 195.

5 Ibid.

6 Ibid., 196.