

# THE NEW ATHEISM

## *Some pre-history*

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THERE IS A strange and misplaced triumphalism in the writings of the new atheists. There is certainly no reason for Christians to feel besieged or needing to go on the defensive.

The aggressive atheism that we hear so loud and clear today has a long pre-history.

In the beginning, in the early centuries and in the medieval universities theology was ‘Queen of the Sciences’ and philosophy and natural philosophy (which later became the natural sciences) were ‘Handmaids of Theology’.

God wrote two books, it was stated, the book of Sacred Scripture and the book of Nature. Since God was the Author of both books, there were no contradictions to be found between what was written in each book.

From a literal interpretation of Scripture it was calculated that the world was created in the year 4004 BC, and that creation occurred over a period of six days, all living species being created separately—living species were fixed, not evolving.

### *The Copernican Theory*

The first sign of possible contradictions between the two books was the emergence of a new astronomical theory. Through most of the Christian era, since the second century A.D., everyone had lived with the geocentric astronomical system that the Alexandrine astronomer and mathematician Claudius Ptolemaeus (ca. 100-170)—known as Ptolemy—expounded in his treatise *The Almagest*. Incorporating the main themes of Aristotelian physics and cosmology, Ptolemy devised an astronomical system in which the Earth is motion-

less in the centre of the universe while the Sun, stars and planets all circle around it and are carried in uniform circular motion on crystal-line spheres. The planets have their own individual spheres, while all the stars are fixed to one great sphere, the sphere of the ‘fixed stars’. This system was assumed without question in the Aristotelian/Thomistic theological tradition which became quasi-normative in the Catholic Church in the period following the Council of Trent (1545-1563).

Nicolai Copernicus (1473-1543), a canon of the Cathedral of Frauenburg in Poland, decided that there had to be a simpler system. He decided to abandon geocentrism; he put the Sun at the centre of the universe and set the Earth in circular motion around the Sun along with the planets and fixed stars. This allowed a new and a much more simple explanation of the apparent movements of the heavenly bodies. No longer was it necessary to hypothesise *ad hoc* the complicated apparatus required in the Ptolemaic system. Copernicus published the full account of his system in *On the Revolutions of the Celestial Spheres* (*De Revolutionibus Orbium Coelestium libri sex*), 1543. He dedicated the treatise to Pope Paul III.

This astronomical innovation was to have far-reaching implications. If one were to take Copernicus’ astronomical theory as a statement of the way things really are in the universe, then Copernicus had removed the Earth from its central place in the universe, he had set it in motion.

They took some time in coming—about seventy years—but objections were inevitable. The basic unease was well-expressed by John Donne, English divine and poet, in his 1611

poem entitled 'The Anatomy of the World':  
 ... new Philosophy calls all in doubt, ...  
 'Tis all in peeces, all cohaerence gone;  
 All just supply, and all Relation.....'

Robert Burton, another Anglican clergyman, was less the philosopher and more the disgruntled populist in *The Anatomy of Melancholy* (1621). He wrote:

The World is tossed in a blanket amongst them, they hoist the Earth up and down like a ball, make it stand and go at their pleasures. (Burton, *The Anatomy of Melancholy*, as quoted in Heninger 1977, 58.)

In the eyes of the normal educated person the theory was preposterous. Common sense, the popular world view, Aristotelian philosophy and the Ptolemaic system all harmonised beautifully; the Copernican system on the other hand was in conflict with every one of these other sources of 'truth', and, most significantly, was in conflict with the literal interpretation of Sacred Scripture.

#### SUMMARY OF THE OBJECTIONS

##### *'Common Sense':*

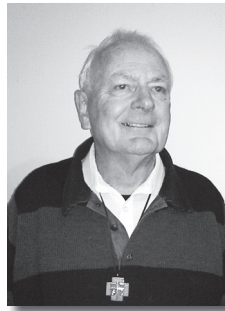
The Copernican theory taken as a picture of the real contradicted the plain evidence of the senses: the Sun rises and sets, the stars circle in the heavens from east to west, and the Earth does not move!

##### *Traditional Theoretical Objections*

How explain why, if the Earth is in motion, when an object is dropped from the top of a tower it invariably lands at the foot of the tower: we would expect it to land at a distance.

If the Earth is in movement, how is it that loose objects do not fly off?

If the Earth is moving, especially if it is moving at the rate that the Copernican theory requires, and if I jump in the direction opposed to the movement of the Earth, towards the east, I should jump much further than when I jump in the same direction as the movement of the



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Earth, towards the west. Likewise, if I fire a cannon in an easterly direction the ball should travel much further than if I fire in a westerly direction.

If the Earth is moving as fast as the Copernican theory requires, why are we not feeling a tremendous gale, and why is the flight of birds not affected?

(These objections had been answered in the middle ages by Nicholas Oresme (1320-1382); Copernicus himself answered them; so did Galileo in his *Dialogue*. They were hard to lay to rest.)

##### *Cultural and Religious Objections:*

The popular world-view harmonised with Ptolemaic astronomy, Aristotelian philosophy and especially the Christian theological doctrines of the dignity and role of the human race in the whole of Creation as explained at that time. The Earth is the dwelling-place of the human race. It is at the centre of the universe, and humans are those very special beings who in Adam have been constituted head, steward and high priest of all creatures on the Earth (*Genesis* 1.26-31), and who are the link between the natural and the supernatural worlds, between the material and the spiritual worlds, who live for a short while on the Earth, and whose final and true home is in heaven. It was an ages-old synthesis based on very many obvious facts about the universe, and upon the conviction that the Earth is the theatre of the divine-human drama in which human beings must respond to their calling to know, love and

serve God here on Earth in order to be happy with him forever in Heaven. It supported a vision that was deeply implanted in the human psyche and popular faith, in the architecture of the cathedrals, in systems of government and in the whole fabric of Christian medieval civilisation.

Copernican astronomy, if taken literally, threatened that harmony of science, philosophy, theology and the accepted world-view at every point. It did violence to the human psyche. It was a huge task, therefore, to try to convince people that the Earth moves and is merely one of the planets circling the Sun. You would need some very convincing evidence, and even that would not be enough.

### THE UNIVERSITIES

Aristotelian philosophy was the reigning philosophy in the Universities, and Ptolemaic astronomy was grafted onto it. The natural place for the Earth was the centre of the universe, the Earth being a heavy body which sought the lowest place, and there was no lower place in a spherical universe than the centre. The duality of earthly matter and heavenly matter in the Aristotelian universe, with one physics for the Earth and a different physics for the Heavens, harmonised with the Ptolemaic system but not with the Copernican. And this duality had ethical significance. On the Earth matter was earthy, all was transitory, changeable and changing, nothing was permanent or at rest, all was marked for decay and death. In the heavens (the super-lunary regions) all bodies were composed of celestial matter (the Aether); the heavens were the realm of eternity, perfection, immutability, stretching from the sphere of the Moon up to the highest heaven.

This two-tiered universe also corresponded to observation: the heavens never change, the heavenly bodies proceed on their perfectly circular courses with absolute regularity, their light never goes out. On Earth where humans live, everything is the reverse—changing, ir-

regular, transitory.

Scholars had a clear understanding that astronomical hypotheses did not attempt to present pictures of the real world. This was the traditional interpretation of astronomical theory from the time of the early Greeks until Copernicus. Astronomical theories were pure hypotheses ‘to save the appearances’—mathematical constructs, mere instruments for linking observations and predicting future phenomena (Duhem 1969). When astronomy was as complicated as was Ptolemaic astronomy, no one would have been tempted to think otherwise. Only in astrology was an explicit link made between astronomical theory and real life.

Because of a misleading anonymous preface (written in fact by his disciple Osiander) early readers of Copernicus’ treatise were given to understand that Copernicus was not intending his theory to be interpreted in any other way: it was no more than an abstract model of the universe and not to be understood as a true picture of the way things were. Osiander misrepresented Copernicus’ personal position.

### CRACKS IN THE REIGNING PTOLEMAIC/ARISTOTELIAN SYNTHESIS

From the second half of the sixteenth century the Aristotelian/Ptolemaic/theology synthesis began to come under pressure. Astronomy was beginning to change under the impact of a renewed empirical approach together with the use of superior instruments and better methods of observation and recording. Cracks were beginning to show in the Aristotelian superstructure. The physics of Aristotle, both that of the earthly region and that of the heavenly, was under considerable pressure.

Comets had been observed in 1577, 1585 and again in 1618, and they were identified as super-lunary phenomena. New stars were observed—Tycho Brahe (1546-1601) had observed a Nova, or new star, in the constella-

tion Cassiopeia in 1572, and a Supernova was observed in 1604. These authoritative scientific observations contradicted the celestial physics of Aristotle by demonstrating that the heavens were not immutable, that the crystalline spheres were not solid and probably did not exist. And without the crystalline spheres some new way of keeping the heavenly bodies in place and travelling in their orbits needed to be found. But even so, these anomalies did not impose acceptance of Copernicanism as a true picture of the universe.

### THE GALILEO AFFAIR

Then came Galileo onto the scene. He wanted to prove that the Copernican hypothesis was more than a system ‘to save the appearances’ but rather that it was a true picture of the universe. He had good evidence to support his claim, but not convincing evidence.

He turned his telescope onto the skies and reported his observations in the *The Siderial Messenger* (1610). The moon, he reported is not perfectly spherical, it has craters and is mountainous—it is like the earth, not a perfect ‘heavenly body’.

He observed that Jupiter has moons in orbit around it—does that not show that the Earth can be in orbit with the moon circling it without the moon being left behind?

In 1613 Galileo published his *Letters on Sunspots*—again, the Sun is a ‘heavenly body’ but is not perfect, unchanging and incorruptible, not made of special heavenly matter.

Galileo observed that Mars and Venus wax and wane, and Venus showed phases in a manner similar to the moon, indicating that Venus orbits the Sun and not the Earth.

Such telescopic evidence for the Copernican theory as a picture of the real was not so convincing to the general public, for whom telescopes were highly suspect instruments and vision was the least reliable of the senses. People distrusted the evidence of their eyes because the eyes were subject to illusions, to seeing strange effects that were not there in

reality. Optical instruments were considered very untrustworthy, especially mirrors and lenses. They were used in magical side-shows to astound the populace with strange, weird and marvellous effects, showing objects and persons as deformed, enlarged, changed in colour, moving wrongly. Above all there was no theory of lenses and how they functioned. In 1604, Kepler’s *Vitellionem Parilipomena* laid the foundations for modern geometrical optics, but his work had little initial impact.

Galileo presented an argument from the phenomenon of the tides, an argument which he considered very probative. The traditional theory was that the tides were caused by the Moon. Even the great Kepler thought that! Galileo claimed that the combined motions of the Earth, its rotation and its revolution which follow from the Copernican system, resulted in the ebb and flow of the seas that produced the tidal motions. Galileo was wrong, of course, and his reasoning seemed far-fetched. People were more ready to stay with the traditional explanation, though it was really not very good as an explanation at that time. It was Newton who showed that the traditional theory was correct, though for the wrong reasons.

Hence Galileo’s evidence was not as convincing to others as it was to himself.

### Church Authorities Intervene

The Church authorities should have left Galileo to front up to philosophers who were wedded to the Ptolemaic system, and to the ordinary citizens who saw the sun rise and set and found absurd the notion of the earth hurtling through space and not leaving them behind or objects flying off, *etc.* His presentation of the Copernican theory as a picture of the real was just too incredible.

Besides, there was a compromise theory proposed by the great astronomer, Tycho Brahe (1546-1601), that was an alternative to both the Ptolemaic and the Copernican theories. It left the Earth motionless and presented

the Sun as circling the Earth and all the other heavenly bodies circling the Sun. This theory was orthodox, because it did not contradict the scriptures.

Unfortunately, however, instead of leaving Galileo to the mercy of the philosophers and the general public, the theologians and the Church authorities took the matter in hand and made it a dispute about the interpretation of Scripture. The essence of this objection was the claim that the immobility of the Earth and the movement of the Sun are truths taught by Scripture, specifically in Joshua 10:12-13; Ps 93:1; 104:5, 19; Ecclesiastes 1:4,5 (cf. 2Kg 20:8-11) and also Ps. 19:4b-6a.

The Holy Office formally ruled that it is heresy to hold that the Sun is the centre of the world and motionless, and that it is wrong and verging on heresy to claim that the Earth is not the centre of the world and that it moves. The *De Revolutionibus* of Nicolai Copernicus was placed on the Index of Forbidden Books 'until corrected'. The reason why it was heretical, the judges of the Holy Office ruled, was that 'it expressly contradicts the teachings of Sacred Scripture', and for that reason it was incompatible with Christian doctrine.

Thus the scriptural objections were the formal reason for its rejection. That meant that the Copernican theory taken as a picture of the real became a heresy: it was condemned as heretical in what it stated about the Sun because it contradicted the teaching of Sacred Scripture, and as virtually heretical in what it stated about the Earth, because it was at least 'erroneous in faith'.

The crisis as it was allowed to develop was fundamentally a struggle between two conflicting claims to cosmological knowledge. Between a cosmology that was claimed to be taught in the Bible and which was accepted in the same way that anything else taught in the Bible was accepted, and which was deeply ingrained in the world as everybody knew it, and a shockingly new cosmology that was unconvincingly claimed to be supported and imposed by natural science.

In the final judicial proceedings against Galileo the controversy was further reduced to one question, *viz.* whether or not the Copernican theory contradicted the Scriptures.

That, I believe, is where the church authorities bungled the Galileo Affair. A whole world-view was being dismantled and a fundamental cultural shift was in progress, and there was still much to be done in strengthening the scientific evidence. But the scriptural question was made to bear the whole load: it became the presenting problem while the many other more fundamental cultural factors, arguably the real reasons for objecting to the Copernican system, remained undeclared and shielded from scrutiny and critique. Debate was stifled.

Once the argument was reduced to an argument about the interpretation of scripture the inadequacies of Catholic theology were exposed and along with them the state of unreadiness of the Catholic church for the new scientific age which was dawning. Especially the theories of biblical inspiration available at the time were inadequate.

Cardinal Bellarmine, Galileo's judge stated that it is forbidden to interpret Scripture in a way that contradicts the common interpretation of the Fathers of the church unless a true (*i.e.* certain) demonstration could be made that we need to re-interpret the Scriptures, and the Copernican theory is not so evidently true as to cause us to review the traditional interpretation of the Scriptures. Cardinal Bellarmine wrote:

I say that, when there is a true demonstration that the sun is in the centre of the world and the earth in the third heaven, and that the sun does not go round the earth but the earth round the sun, then we will need to proceed with great caution in explaining the Scripture passages which seem to be in contradiction and rather say that we do not understand them than say that what has been demonstrated is false. (Letter to Foscarini in Blackwell, pp.265-267.)

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*Galileo 'Martyr for Science'*

Galileo is commonly depicted as a tragic hero pitted against the powerful, despotic Catholic church institution, an enlightened man fighting for freedom of thought against organised, authoritarian and unenlightened theologians. Truth and intellectual freedom prevailed, according to this account, in spite of the efforts of the ecclesiastical bullies and bigots. There is hardly a more well-worn 'truth'—or, rather, *myth*—in the whole of the history of the modern world than this interpretation of the Galileo Affair, but it is not the way things were.

At this point contemporary atheism was born, based largely on the belief that scientific explanations and theological explanations are in competition. True, there have been many instances down the centuries when scientific explanations have been found for phenomena that had been previously given religious explanations. This has been and still often is interpreted

as a retreat by religion before the triumphal march of scientific progress. A whole school of historiography flourished at the turn of the twentieth century based on that interpretation of the history of the relations between religion and science. For example, William Draper wrote *The Warfare of Science and Theology*, in which he wrote the history of western society as one long battle for hearts and minds between religion (described as superstition) and reason.

This 'warfare' interpretation has been rejected by scholars (e.g. Brooke 1991). It seriously distorts the picture of the actual relations between science and religion down the ages.

In fact, the story of the relations between science and religion is of one poorly managed encounter—the Galileo Affair—and much more fruitful interaction between science and theology when other scientific developments were made. We aim to develop this theme in a future article.

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