

FYSM-1000-09 Handout A The Sun & Sky: What does it all mean?

There's a lot of science and math in this course, but we also want to understand how these topics are applicable in other aspects of our lives. For some very long-term historical context, I've gathered some interesting quotations and divided them up into 3 parts: **Ancient Myth**, **Renaissance Faith**, and **Postmodern Metaphor**.

Ancient Myth

The myth of Phaethon, the son of the ancient Greek Sun-god, has been told as a cautionary tale about the danger of mortals trying to take on the power of the gods. However, it may also be read as a description of how the raw power of the Sun exceeds our everyday experiences...

Phaethon (whose name means "shining") was the son of a mortal woman and the Sun-god Helios. Other children taunted Phaethon about his claims to demi-godhood, so one day he set off to meet his father and prove his parentage once and for all.

After a long journey, Phaethon arrived at the Sun's palace, east of the easternmost lands of India. The hall of Helios towered up with raised columns, bright with glittering gold, and gleaming bronze like fire. Shining ivory crowned the roofs, and the twin doors radiated light from polished silver.

He made his way into his father's presence, but stopped some way off, having to shield his eyes from the blazing light. Helios sat on his throne, and to the right and left stood the Day, Month, and Year, the Century, and the equally spaced Hours. The Sun, seated in the middle of them, looked at the boy, who was fearful of the strangeness of it all. Helios said "What reason brings you here? What do you look for on these heights, Phaethon, son that no father need deny?"

Hearing this admission was pleasing to Phaethon, but he wanted proof. Helios told his son he would do anything in his power to help him. Phaethon had watched, day after day, as the Sun rode across the heavens, and he had always wished that he too could ride there. He asked to drive his father's chariot across the sky for one day, to guide the wing-footed horses of the Sun by himself.

Helios tried to warn his son of the dangers: the steep rise in the morning, the dizzying heights at noon, and the terrifying decline towards sunset. Even Zeus himself cannot drive the chariot of the Sun. But eventually, he relented, and allowed Phaethon to do as he wished. Helios gave his son one warning: follow the heavenly wheel-marks made through the ages, and keep to the the middle way: not too high or low, neither too northward nor too southward.

Phaethon started out very well. But then he began to dip down, so that his friends would see that it was he driving and not his father. As soon as he deviated from the track, the horses went wild and pulled away from the reins. Phaethon first drove downwards, and the Earth began to burn. Seeing the error of his ways, he tried to coax the horses back up, but they rose too high and the Earth began to freeze. Again he dropped lower, and the ice and snow that had formed began to melt, and the Earth began to flood. Up in the sky, Phaethon could not bear the heat of the white-hot solar chariot, and sparks flung out, causing the high mountains to erupt with lava.

By this time, all-seeing Zeus saw what was happening, and he heard the pleas of the suffering people, animals, trees, and the Earth herself. Despite having no more clouds or

rain, he still had his thunderbolts. He had no choice but to strike down Phaethon, who hurtled down to Earth with flames ravaging his glowing hair. Like a shooting star he plummeted down into the River Eridanus, far from his own country. The horses on their own flew back to their stables, and the river nymphs carved a verse in the nearby rock:

*Here Phaethon lies, who in the Sun's chariot fared;
And though greatly he failed, more greatly he dared.*

For a time, Helios, ill with grief, hid his face, and the world went without day. Even now, the mountains still rumble, trying to spit out the fire started in their bellies by the diving Sun. Never again did a mortal dare to ride Helios the Sun's chariot, for some things are better left to the gods.

Adapted from Ovid's *Metamorphoses*, Edith Hamilton's *Mythology*, and an online summary of the story by Angie Briese.

Next, a story about eclipses from the *Mahabharata*, the 200,000-verse Sanskrit epic poem from the 9th century BC...

One day, the Hindu gods decided to mix up a batch of amrita, the elixir of immortality. The highest gods were to drink the elixir to maintain their immortality, but they needed help from the demons and demigods to stir up the oceans to produce it. Out of the churning oceans, many things—such as the Sun and Moon—were produced along with the amrita.

The god Vishnu took charge of distributing the freshly made amrita to the other gods. While it was being passed out, the demons started battling with the gods for a taste of the elixir. The serpent-demon Rahu, a proud being of immense power, desired immortality with an intense hunger. In all the confusion of the battle, Rahu disguised himself as a god and drank some of the elixir. The Sun and Moon spotted this transgression, and spoke out. Vishnu threw his sharp circular *chakram* and sliced off the head of Rahu.

Since the amrita had passed into the demon's throat, his head had already become immortal. This was the creation of the serpent's or dragon's head (Rahu), and the serpent's or dragon's tail (Ketu). The ever-living head continually seeks his revenge on the Sun and Moon, who reported his misdeeds to Vishnu. Even now, Rahu and Ketu both chase the Sun and Moon across the sky, and Rahu tries to eat them. Occasionally he catches and swallows one of them, causing an eclipse. But the victim quickly falls out of Rahu's throat and the eclipse ends. Some believe that banging on drums or utensils during an eclipse helps to scare Rahu into releasing the Sun or Moon.

We now know that the Moon's orbit around the Earth intersects the ecliptic at two points. These two points are the north and south lunar nodes, named after Rahu and Ketu. Eclipses occur only when the Moon passes through one of its nodes. Ancient Hindu astronomers used to track the positions of Rahu and Ketu as if they were "shadow planets."

Adapted from text by C. Hartley, Robert Lamb, and Joni Patry.

Renaissance Faith

Developments in astronomy and physics made by Copernicus, Kepler, Galileo, and Newton revolutionized our view of the physical universe and did away with the older Aristotelian physics and Ptolemaic cosmology which had stood for over 1000 years. It is often asserted that the work of these men also overthrew the authority of the Bible and, as a consequence, concluded that science is incompatible with faith in God. However, all four of these intellectual giants were raised and educated within the Christian faith and, during their long scientific careers, remained committed Christians. We can look in more detail at what they themselves said about the relationship between their faith and their science.

The quotes below from Copernicus, Kepler, Galileo, and Newton were taken from the book *The Galileo Connection* (by Charles E. Hummel, 1986). They were originally formatted into a handout by Prof. Joan Centrella, an astrophysicist and a devout Christian.

Nicholas Copernicus (1473–1543): Copernicus served the Roman Catholic Church as a canon throughout his adult life.

The great astronomer saw no conflict between his Christian faith and scientific activity. During his forty years as a canon, Copernicus faithfully served his church with extraordinary commitment and courage. At the same time he studied the world “which has been built for us by the Best and Most Orderly Workman of all.” Copernicus pursued his science with a sense of “loving duty to seek the truth in all things, in so far as God has granted that to human reason.” He declared that although his views were “difficult, almost inconceivable, and quite contrary to the opinion of the multitude, nevertheless in what follows we will with God’s help make them clearer than day—at least for those who are not ignorant of the art of mathematics.” (p. 55)

Johannes Kepler (1571–1630): Kepler was a Lutheran and suffered religious persecution from the Catholic Church during the Counter-Reformation.

As a Christian, Kepler was convinced that God had a master plan when he created this orderly, beautiful, and mathematically perfect world. (p. 63)

Kepler wanted to discover all the laws in that master plan, to complete the entire jigsaw puzzle. His relentless search for scientific truth reflected the devotion of a committed Christian. On one occasion he reported, “I believe Divine Providence intervened so that by chance I found what I could never obtain by my own efforts. I believe this all the more because I have constantly prayed to God that I might succeed if what Copernicus said was true.” (p. 63)

When someone asked him in a lucid moment [as he lay on his deathbed with fever] where he thought his salvation lay, he answered confidently, “Only and alone on the services of Jesus Christ.” In Christ the astronomer found his refuge and solace. (p. 79)

Galileo Galilei (1564–1642):

In a Letter to Castelli just before Christmas 1613, Galileo carefully spelled out his position as a scientist and a Catholic. He reaffirmed his commitment to the truth and authority of the Bible, then raised the question of its proper interpretation. Obviously it speaks at times in

figurative terms and language understandable to the average person. Galileo expressed concern about “the carrying of Holy Scripture into disputes about physical [that is, scientific] conclusions.” God has given two books, one of nature, the other of Scripture. “Both the Holy Scriptures and Nature proceed from the Divine Word, the former as the saying of the Holy Spirit and the latter as the most observant executrix of God’s orders.” (p. 95)

Galileo uses the famous metaphor of the ‘book of nature,’ which plays a central role in all his thinking about theology and science: “The Holy Bible and the phenomena of nature proceed alike from the Divine Word... God is known... by Nature in His works, and by doctrine in His revealed word.” Galileo emphasizes that the Bible is written for “the primary purpose of the salvation of souls and the service of God” and not to teach science. (p. 106)

Galileo had been deeply hurt by the trial verdict’s “vehement suspicion of heresy.” Yet he did not withdraw from the church; he went on praying and asking his friends to pray for him... Galileo’s own conscience as a Catholic and as a scientist was clear. Even though the church had turned its back on him, he blamed only some “wrong-headed individuals.” (p. 124)

“I have two sources of perpetual comfort—first, that in my writings there cannot be found the faintest shadow of irreverence toward the Holy Church; and second, the testimony of my own conscience, which only I and God in Heaven thoroughly know. And he knows that in this cause for which I suffer, though many might have spoken with more learning, none, not even the ancient Fathers, have spoken with more piety or with greater zeal for the Church than I.” (p. 125)

Isaac Newton (1642–1727): During his lifetime, Newton wrote about 1.3 million words on biblical subjects, spending more time on theology than on science.

“It is the perfections of God’s works that they are all done with simplicity. He is the God of order and not confusion.” (p. 143)

Although Newton spent much of his time studying the special revelation of God in Scripture, he had a high view of general revelation—the knowledge of God that can be gained through the study of creation. The scientist had a strong commitment to natural theology, to which he believed his discoveries made a significant contribution. At the end of the *Principles* he wrote: “This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and dominion of an intelligent and powerful Being.... This Being governs all things, not as the soul of the world, but as Lord over all; and on account of his dominion he is wont to be called Lord God.” (p. 144)

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In the early 1600s, there were other Christian movements that made use of Sun-symbolism to talk about some grand and optimistic plans for the future. A semi-anonymous group called the *Rosicrucians* circulated manifestos that claimed a new age would soon be rising. In their book *Fama Fraternitatis*, they said that the “novae” discovered by Kepler and Tycho were the first signs, and that day would be soon following night:

Howbeit we know that, after a time, there will now be a general reformation, both of divine and humane things, according to our desire, and the expectation of others. For it's fitting, that before the rising of the Sun, there should appear and break forth *aurora*, or some clearness, or divine light in the sky.

In 1623, philosopher Tommaso Campanella published a book called *The City of the Sun*, which presented his view of a hidden utopian society that he hoped would become a role model for the rest of the world. About the inhabitants of this city, Campanella said:

They contemplate and know God under the image of the Sun, and they call it the sign of God, His face and living image, by means of which light, heat, life, and the making of all things good and bad proceed. Therefore they have built an altar like to the Sun in shape, and the priests praise God in the Sun and in the stars, as it were His altars, and in the heavens, His temple as it were; and they pray to good angels, who are, so to speak, the intercessors living in the stars, their strong abodes. For God long since set signs of their beauty in heaven, and of His glory in the Sun.

They assert two principles of the physics of things below, namely, that the Sun is the father, and the earth the mother; the air is an impure part of the heavens; all fire is derived from the Sun. The sea is the sweat of earth, or the fluid of earth combusted, and fused within its bowels, but is the bond of union between air and earth, as the blood is of the spirit and flesh of animals. The world is a great animal, and we live within it as worms live within us. Therefore we do not belong to the system of stars, Sun, and earth, but to God only; for in respect to them which seek only to amplify themselves, we are born and live by chance; but in respect to God, whose instruments we are, we are formed by prescience and design, and for a high end. Therefore we are bound to no father but God, and receive all things from Him.

Postmodern Metaphor

The use of the Sun & space to develop new metaphors for meaning has not stopped with the rise of scientific understanding. That understanding also lets people view the old myths in new ways.

E. C. Krupp (1944–present) has been the director of the Griffith Observatory in Los Angeles for more than 40 years. In 1991, he wrote a book titled *Beyond the Blue Horizon: Myths and Legends of the Sun, Moon, Stars, and Planets*. In it, he wrote. . .

When the Greeks wanted to refer to the entire universe, the word they used was *cosmos*, which meant more than just an inventory of the merchandise in the cosmic warehouse. The universe, they were convinced, had structure. It was ordered—in appearance and operation. In fact, their word *cosmos* actually meant the “ordered whole.” The Greeks, like many others, looked for pattern, cycle, and order in the world around them to contrive a picture of cosmic order.

That is what consciousness does. It contrives the world, and it does so by letting us classify phenomena, organize events, and code information. Space and time comprise the framework on which this system of knowledge depends. The Greeks saw an orderly framework of space and time on display in the sky, and they used celestial phenomena to define the character of the universe in which they believed they lived. They saw, for example, the dependable, unending cycle of day and night. It was visible in the oscillation between a bright blue sky accompanied by the sun and a dark black sky populated with stars.

. . . We tell ourselves these sun stories about ourselves whenever we re-chronicle the triumph of the light over dark. We see ourselves born; we watch ourselves grow; we witness our deaths; and we celebrate the new children that replace us. We also speak of another kind of rebirth, a rebirth of the soul, and the crucial episode in that story is death. That’s why the Egyptians put a sun story on the walls of a tomb. They and many other peoples have believed that we complete the cyclical tale and put it in motion again by dying and transcending death through resurrection, reincarnation, or some other transformation of the soul that transports us to heaven, that carries us from the darkness into the light.

Charles Stansfeld Jones (1886–1950) was a philosopher who embraced a wide range of beliefs in his life. He spent several decades following the infamous occultist Aleister Crowley, and in 1919 he published an essay titled “Stepping Out of the Old Aeon Into the New,” in *The Equinox*, vol. III, no. 1. His beliefs were a little on the odd side, but for him the Sun was a central symbol of how the 20th century was a brand-new age (or “aeon”) of human history. . .

You know how deeply we have always been impressed with the ideas of Sun-rise and Sun-set, and how our ancient brethren, seeing the Sun disappear at night and rise again in the morning, based all their religious ideas in this one conception of a Dying and Re-arisen God. This is the central idea of the religion of the Old Aeon but we have left it behind us because although it seemed to be based on Nature (and Nature’s symbols are always true), yet we have outgrown this idea which is only apparently true in Nature. Since this great Ritual of Sacrifice and Death was conceived and perpetuated, we, through the observation of our men of science, have come to know that it is not the Sun which rises and sets, but the earth on which we live which revolves so that its shadow cuts us off from the sunlight during what we call night. The Sun does not die, as the ancients thought; It is always shining, always

radiating Light and Life. Stop for a moment and get a clear conception of this Sun, how He is shining in the early morning, shining at mid-day, shining in the evening, and shining in the night. Have you got this idea clearly in your minds? *You have stepped out of the Old Aeon into the New.*

Now let us consider what has happened. In order to get this mental picture of the ever-shining Sun, what did you do? You identified yourself with the Sun. You stepped out of the consciousness of this planet; and for a moment you had to consider yourself as a Solar Being. Then why step back again? You may have done so involuntarily, because the Light was so great that it seemed as Darkness. But do it again, this time more fully, and let us consider what the changes in our concept of the Universe will be.

The moment we identify ourselves with the Sun, we realize that we have become the source of Light, that we too are now shining gloriously, but we also realize that the Sunlight is no longer for us, for we can no longer see the Sun, any more than in our little old-aeon consciousness we could see ourselves. All around us is perpetual Night, but it is the Starlight of the Body of Our Lady Nuit in which we live and move and have our being.... We are not in darkness; we are much nearer to Her now. What (from the little planet) looked like specks of light, are now blazing like other great Suns, and these are truly our brothers and sisters, whose essential and Starry nature we had never before seen and realized.

Now, if you want to step back into the Old Aeon do so. But try and bear in mind that those around you are in reality Suns and Stars, not little shivering slaves. If you are not willing to be a King yourself, still recognize that they have a right to Kingship, even as you have, whenever you wish to accept it. And the moment you desire to do so, you have only to remember this: *Look at things from the point of view of the Sun.*

Don Cupitt (1934–present) is an English philosopher of religion. In 1995, he published a small book titled *Solar Ethics*, in which he lays out his idea for a new, Sun-based symbolism for life. . .

The Sun sees no reason at all to apologize for making such an exhibition of itself all the time; it simply is its own outpouring self-expression. It puts on a good show. It has no ‘inwardness;’ that is, it is not inwardly subject to something unseen that is authoritative over it. It does not experience the moral order as being something distinct from itself and its own activity. It is not *driven*, either by anxiety or by resentment: it is purely and only affirmative.

. . .The Sun lives beyond the distinction between living and dying, because the thermonuclear burning by which it lives is also and identically the process by which it is dying. Its whole being is wholly both at once. . . which makes it a symbol of ‘glory,’ or eternal life—a perfect synthesis of life and death that completely delivers one from self-concern and the fear of death.

. . . A corollary of the old outlook was a contrast between the immortal soul and the mortal, corruptible human flesh. . . .The solar point of view completely gives up the contrasts, and gives up the idea that anything is fixed or unchanging. The world is like a fire or a fountain, an outpouring, self-renewing, utterly contingent and outsideless flux of energies-read-as-signs. And we are completely immersed in it. We should cast ourselves joyfully into the flux of existence.