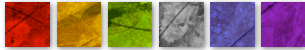


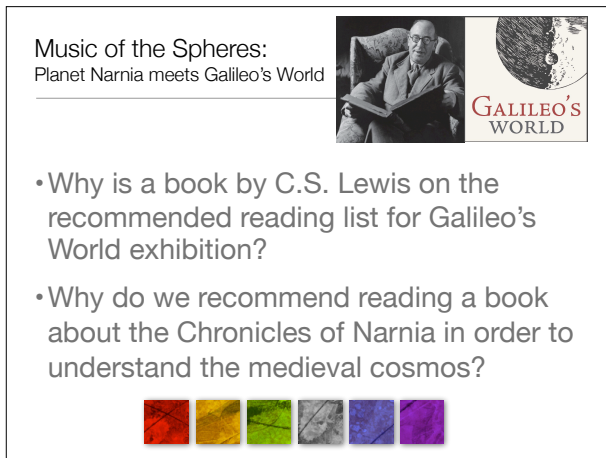
The Music of the Spheres:
Planet Narnia meets Galileo's World

Kerry Magruder, Curator
History of Science Collections, University of Oklahoma



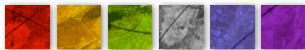
1

Thank you for inviting me.



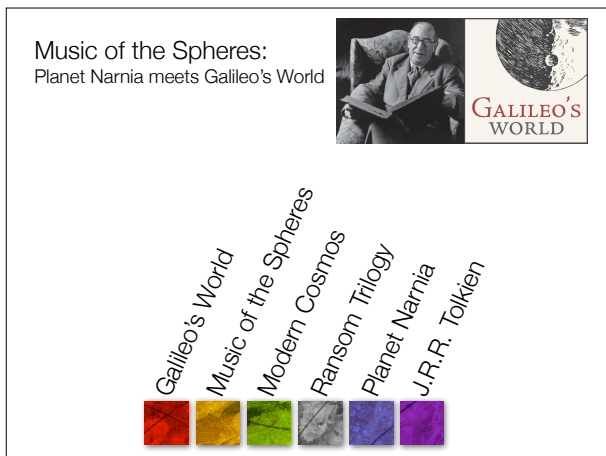
Music of the Spheres:
Planet Narnia meets Galileo's World

- Why is a book by C.S. Lewis on the recommended reading list for Galileo's World exhibition?
- Why do we recommend reading a book about the Chronicles of Narnia in order to understand the medieval cosmos?



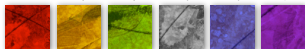
2

In a nutshell, here's what it's about:



Music of the Spheres:
Planet Narnia meets Galileo's World

- Galileo's World
- Music of the Spheres
- Modern Cosmos
- Ransom Trilogy
- Planet Narnia
- J.R.R. Tolkien

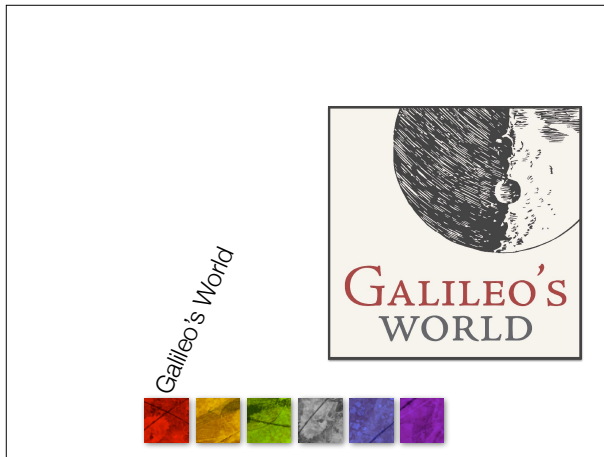


3

My talk has six parts: (read)

4

First, Galileo's World.



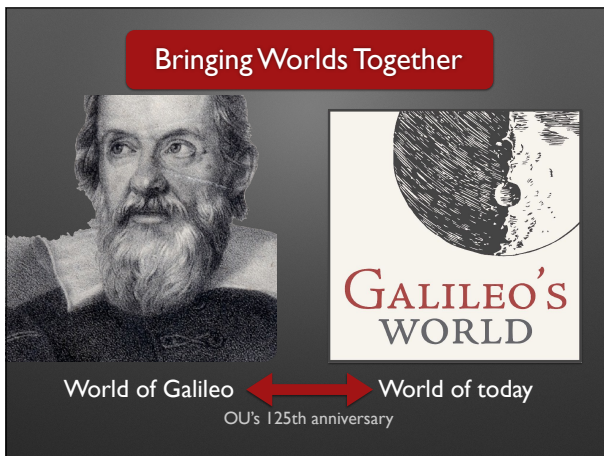
5

350 Rare books like these made the Galileo's World exhibition an international event. To see all of the works of Galileo in first editions was a once-in-a-lifetime opportunity.



6

The theme of Galileo's world was • “bringing worlds together. We connected the • World of OU with • the World of Galileo. • Creating conversations about these connections, by juxtaposing objects old and new, was our way of celebrating OU's 125th anniversary.



EXHIBITION WITHOUT WALLS

3 CAMPUSES • 7 LOCATIONS • 20 GALLERIES

- OU NORMAN
 - FRED JONES JR. MUSEUM OF ART
 - SAM NOBLE MUSEUM OF NATURAL HISTORY
 - NATIONAL WEATHER CENTER
 - ATHLETICS DEPARTMENT
 - OU LIBRARIES
 - HISTORY OF SCIENCE COLLECTIONS
- HEALTH SCIENCES CAMPUS, OKLAHOMA CITY
 - BIRD LIBRARY
- OU TULSA
 - SCHUSTERMAN LIBRARY
- OU AREZZO, ITALY – AREZZO PUBLIC LIBRARY

7

Galileo's World was an exhibition without walls. It appeared over the course of the last academic year in 20 galleries in 7 locations across the OU campuses of Norman, Oklahoma City, and Tulsa — and even Arezzo, in the heart of Tuscany, where OU opened a campus for study abroad.

REPRISE, 2016-2018

BIZZELL MEMORIAL LIBRARY, 5TH FLOOR



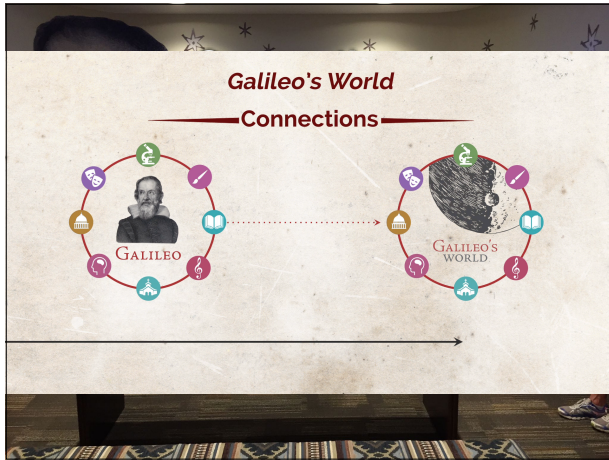
8

Now that the anniversary year is over, the 350 original rare books on display at all the various locations have been returned to the University's special collections. A reprise of Galileo's World remains available in Bizzell Memorial Library. This reprise of the original exhibition will run for two years. I hope you'll come and see it, if you haven't already.



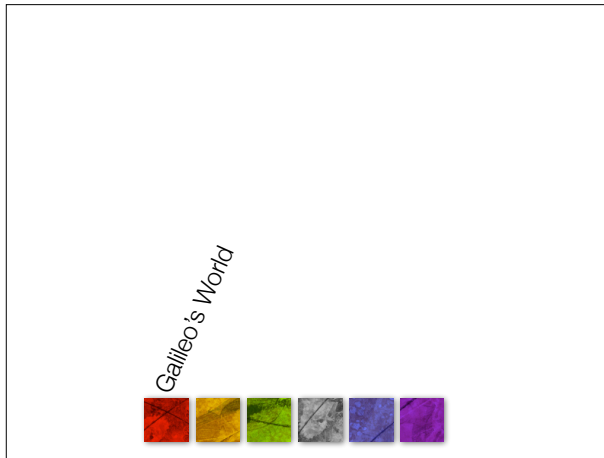
9

On the 5th floor, visitors begin with a brief video in the theater. Before the renovation, this was my office! But it's much better used as public space, and I'm thrilled that we have something to offer everyone, regardless of age. I'd like to share this orientation video with you now.



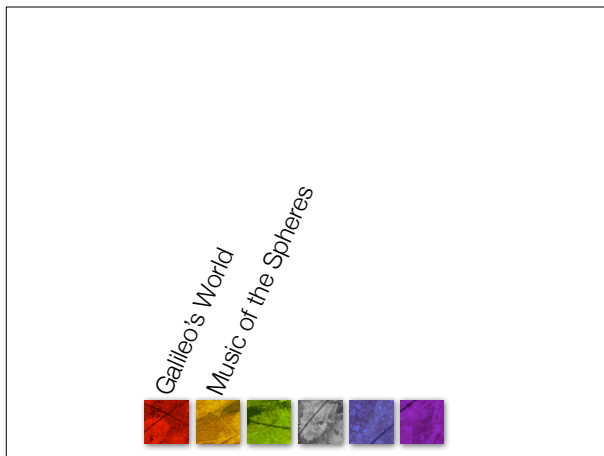
10

(Play video)



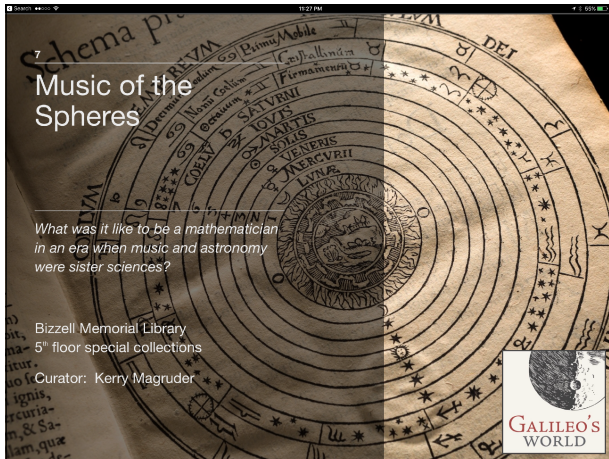
11

So that's Galileo's World.



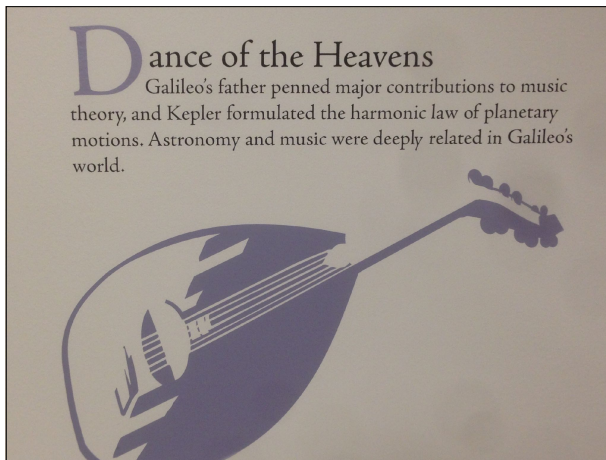
12

Next is Music of the Spheres. As mentioned, 20 different galleries made up Galileo's World. The first was Music of the Spheres, and it is still available as part of the ongoing reprise.



13

This is a screenshot from an iPad Exhibit Guide. It's for the Music of the Spheres gallery, and shows the prompt for reflection: What was it like to be a mathematician in an era when music and astronomy were sister sciences?



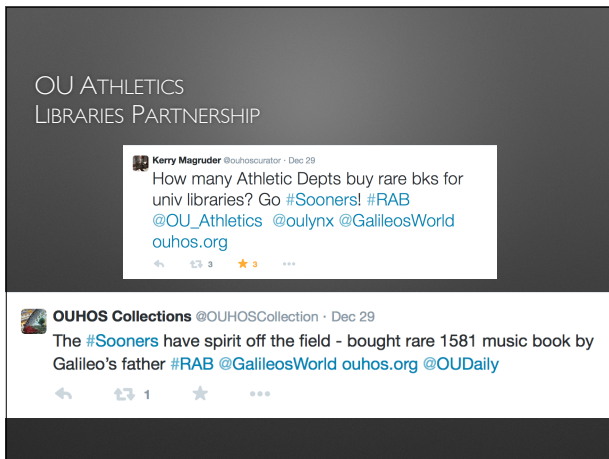
14

The first section in the gallery is Dance of the Heavens. A wall graphic reads: Galileo's father penned major contributions to music theory, and Kepler formulated the harmonic law of planetary motions. Astronomy and music were deeply related in Galileo's world.



15

The first book encountered here is a book on music theory by Galileo's father. Galileo's father Vincenzo was a leading composer of music for the lute. This work profoundly influenced the birth of Italian opera. Galileo also played the lute, and gave public lectures on the acoustics of the lute. Galileo quoted his father's book in his later works.



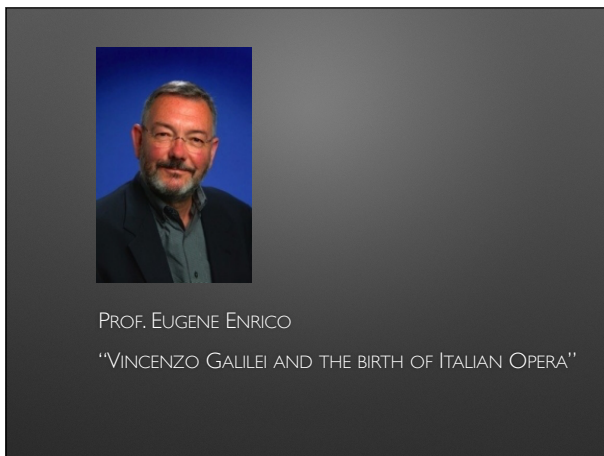
16

By the way, during the Sooner's recent desperate bowl games, tweets like these may have been overlooked among the general despair, confusion and sorrow, but (read).



17

Out of the 350 original rare books on display, 3 were purchased with the assistance of the OU Athletics Department: a manuscript in 2012, Sirigatti in 2013, and Vincenzo Galilei in 2014.



18

Last fall, OU Prof Gene Enrico, a Vincenzo Galilei scholar, presented a public lecture on the significance of Galileo's father: Vincenzo Galilei and the Birth of Italian Opera.



19

The following week, as mentioned earlier, the School of Music presented an opera by Monteverdi that reflects Vincenzo's influence. Mathematics is not just for mathematicians. The history of science is not just for scientists, but embraces both music and astronomy together.



20

This is our functioning replica of Galileo's inclined plane in the New Physics gallery. When Galileo conducted his inclined plane experiments to experimentally demonstrate the law of free fall, he measured the times of the balls to • "within a 10th of a pulsebeat." Friends who were not musicians, were not able to successfully replicate the experiment. It's still difficult to replicate today, even with a stopwatch! So Galileo's science was made possible because of his experience in music even on the level of basic sensory perception.



21

In the Music of the Spheres gallery, we explore the relations between music and astronomy. This cross section of the universe, or cosmic section, shows the transparent, concentric celestial spheres.



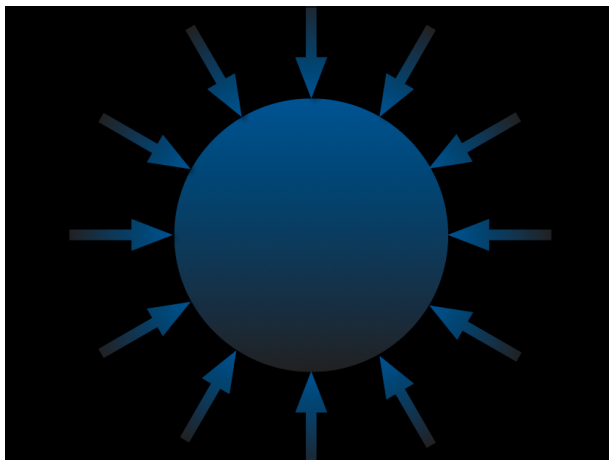
22

Astronomers from antiquity through the Renaissance believed that celestial spheres, made of a fifth element called ether or the quintessence, explained the obvious motions of the Sun, Moon and stars. The spheres also can account for the planets. Exalted far above the Earth and the sublunar elemental regions, the solid spheres, incorruptible, effortlessly turn in place, creating a harmony of motions known as the music of the spheres.



23

Four elements comprise all that exists below the Moon: earth, water, air and fire.



24

Just as a rock falls to the ground, so earthy material strives naturally to move toward the center of the universe. Therefore by gravity, earth congregates in a spherical body at the center.



25

Water mixes with earth to form the seas upon a habitable globe;



26

Clouds churn in the region of air;



27

and just as fire strives naturally to move upward, so exhalations from volcanos and earthquakes rise to the region of fire, just below the Moon, causing fiery phenomena such as meteors and comets.



28

The four elements of these sublunar regions...



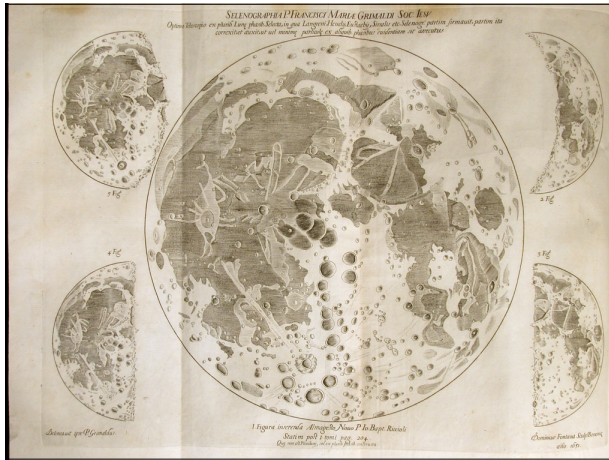
29

... constantly mix together in unceasing processes of generation and corruption.



30

As the Moon revolves around the Earth,



31

we see only one familiar side. This observation confirms that the Moon lies embedded within a giant solid transparent sphere that carries it around us once a month.



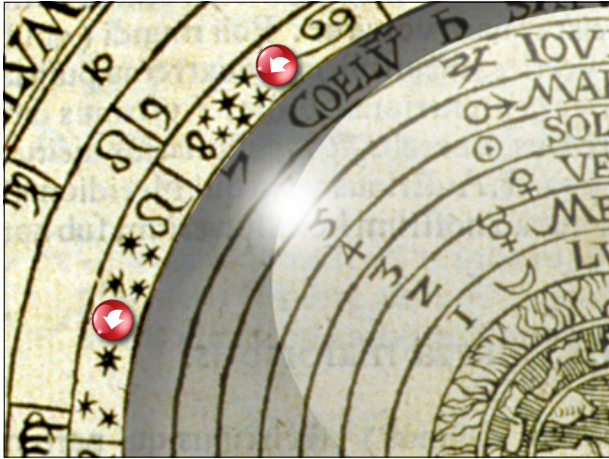
32

On the boundary between heaven and Earth, the Moon patrols the great frontier between the regions of corruption below and the pure celestial spheres above.



33

High overhead the stars of the firmament appear fixed in the patterns of the constellations, as if they were bright points of light embedded within their own transparent celestial sphere.



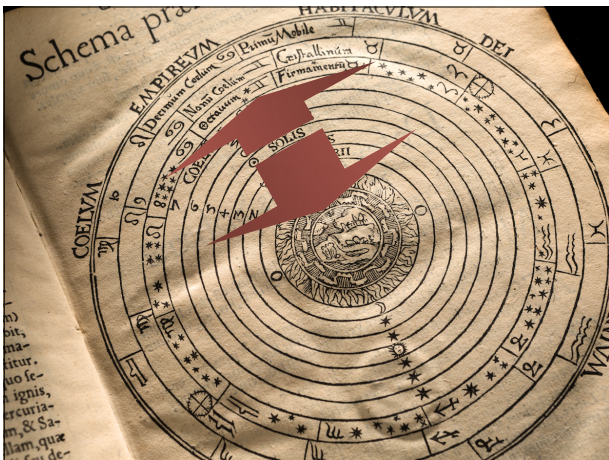
34

In its daily or diurnal motion, the firmament of fixed stars turns once around the Earth every day. Each star traces one full circle every 24 hours. This makes sense of common experience and natural observations. And if the hypothesis of solid spheres so easily explains the motion of the Moon and of the fixed stars, then why not use them for the other celestial bodies as well?



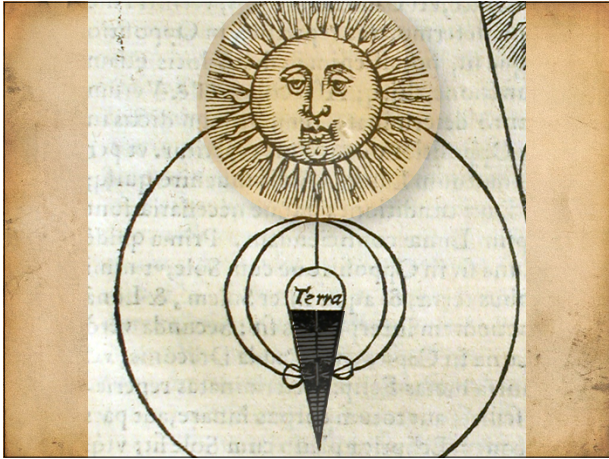
35

In addition to the Moon and stars, the Sun also has its own sphere. With an annual motion, the sphere of the Sun carries it around the Earth once each year.



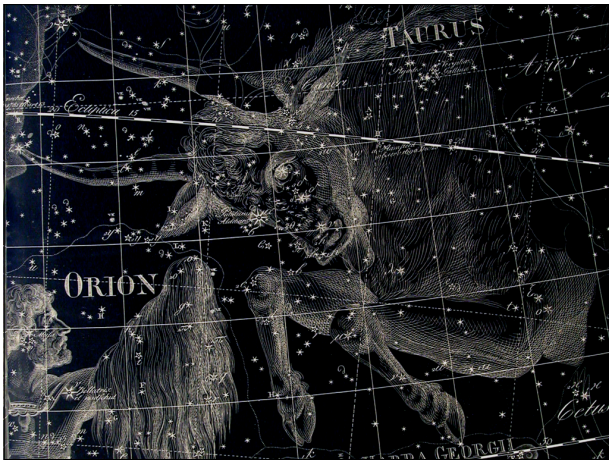
36

In this geocentric cosmos, the Sun occupies a privileged position in the middle of the heavens, from which it illumines the entire universe, pervading the spheres above and below with light,



37

except where that light is obscured by the small conical shadow of our darkened Earth.



38

Across our nighttime sky, within a silent shadow of mortality, we gaze upon distant spheres brightly illumined, filled with joy and life.



39

The vigor, power and dignity of the spheres diminish as one descends from the breathtaking daily pace of the outer sphere of fixed stars.



40

To lie at the center was not a place of privilege, but a cosmic reminder of human insignificance. The greatest king on Earth rules only the gutter of the universe, the theater of corruption and decay, in contrast to the glories of the unspoiled heavens. In this sense, the cosmos was earth-centered, but not human-centered.



41

In terms of significance, the geocentric universe was centered on its circumference.



42

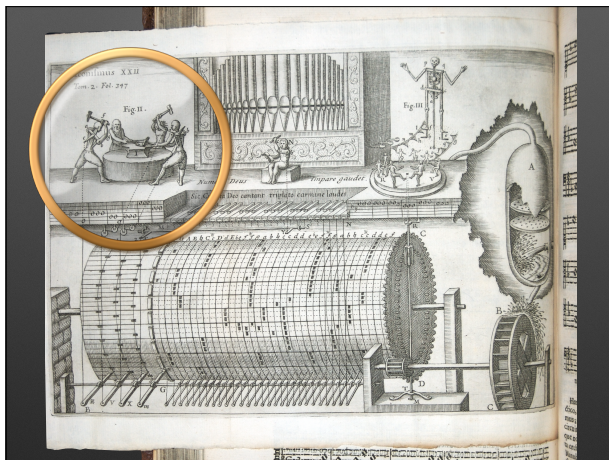
From Dante to Chaucer to Shakespeare, this vision of perfect celestial spheres rotating effortlessly around the central globe of mortality was the common conception of the cosmos, ... The idea of the music of the spheres was pervasive, in science and literature and wider culture. Aristotle taught that the spheres turn by eternal desire. Dante wrote that they moved by love.



43

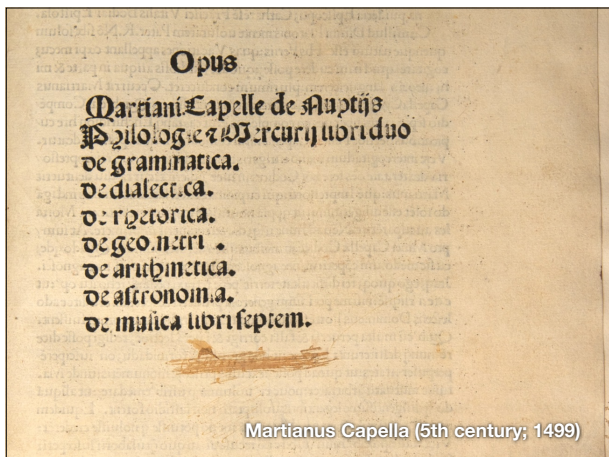
This is the first edition of Dante's collected works. Galileo gave lectures on Dante and could recite his poetry by heart, at length. Dante's epic journey through the universe, from its center up to the highest celestial sphere, represents the universe as animated by love. For Dante, the universe is filled with meaning. It is no wonder that he pays close attention to the stars. Surprisingly, EACH of the three volumes concludes on the word "stars." The last line of the Divine Comedy is my favorite; it describes the celestial spheres, referring to, "the love that moves the sun and other stars."

[The Penguin edition, translated by Tolkien's friend Dorothy Sayers, includes a



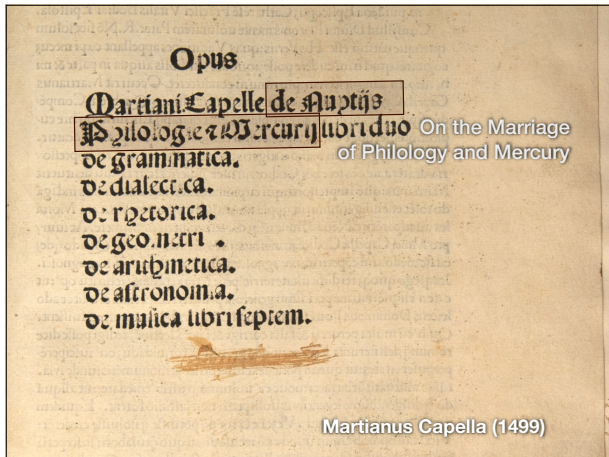
44

The idea that music and astronomy are somehow intrinsically related, that they are sister sciences, goes back to the ancient Pythagoreans. According to legend, after hearing blacksmiths at work, Pythagoras arrived at the idea that the musical scale consists of whole number ratios. For the ancient Pythagoreans, the universe is a musical scale. • This is a depiction of a water-driven organ from a work on music, published a generation after Galileo. In Galileo's world, every musical instrument reveals the mathematical harmony of nature.



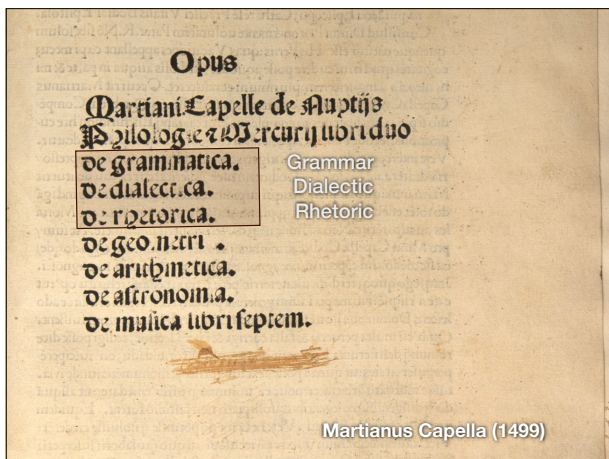
45

The linkage between astronomy and music established by the Pythagoreans became institutionalized in the liberal arts tradition. Let's go back to Martianus Capella, who lived in the Roman empire in the 5th century. In this 1499 printing of his book, Capella described the seven liberal arts, i.e., the education appropriate to a free citizen rather than a slave.



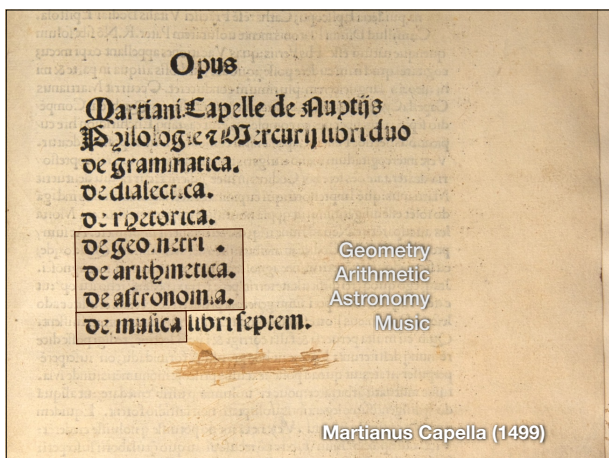
46

The strange title, The Marriage of Philology and Mercury, refers to a wedding of the swiftest god and the most learned goddess. Its meaning is the joining of speech and insight, as if our thoughts and language were as agile as a spherule of mercury rolling around on a sheet of glass.



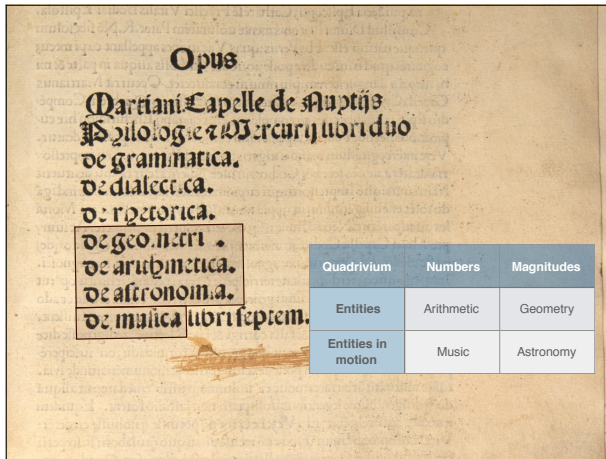
47

The first three liberal arts are grammar, how to write well; logic or dialectic, how to think well; and rhetoric, how to speak well. These three later became known as the trivium, and were the basis of study in grammar schools.



48

Next come the last four liberal arts, beginning with geometry, then arithmetic, astronomy, and music. Later known as the quadrivium, they were studied at the university level. These last four liberal arts are all mathematical sciences.



49

Geometry is • the study of magnitudes, like lines and circles; and arithmetic is the study of numbers. • If magnitudes are put in motion, we then have astronomy, a branch of geometry. If numbers are put in motion, we then have music, a branch of arithmetic. So music and astronomy, for the liberal arts tradition as for the ancient Pythagoreans, are sister sciences. This is not just metaphor, but a heuristic, a way of thinking: a discovery in one area should lead to a corresponding or analogous discovery in the other area.



50

The most astonishing example of music guiding astronomical inquiry in this liberal arts tradition may be Kepler's Harmony of the Universe, which contains the laws of the motion of the heavens, including his harmonic law, written in musical notation. The liberal arts tradition of rich interdisciplinary between music and astronomy fostered his radical mental leap from a musical mode of thinking to astronomical discovery. In this work Kepler was thinking musically. He articulated his three laws in the form of musical notation.



51

Kepler achieved a synthesis of his new astronomy with recent polyphonic musical theory. Kepler demonstrated that the motions of the planets consisted of precisely the same harmonic ratios as the latest tuning of musical scales. The beauty of music provided the context for what we call his "third law."



52

Jonathan Annis, an OU graduate student in music composition, has composed a suite for harp, flute and oboe entirely based upon musical themes from Kepler's book. Jonathan arranged the themes, but they're all from Kepler's musical description of the universe as a cosmic dance.

- [listen]



53

We hope to perform the entire suite sometime this year, and make a recording available as an open educational resource. Jonathan is creating a score of his arrangement annotated so that musicians and astronomers alike can understand how Kepler was thinking.

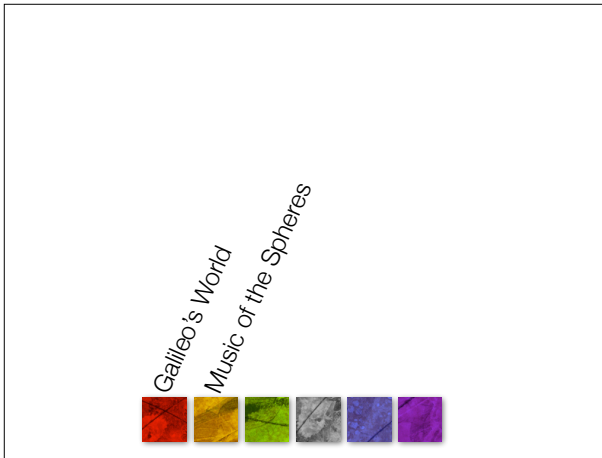


54

So in this gallery we have seen that Kepler's musical mode of thinking led him to formulate his harmonic law that still governs the motions of planets, stars and galaxies. This kind of interdisciplinarity, or connections between subject areas at a profound, creative, heuristic level, is what education in the liberal arts tradition is all about.

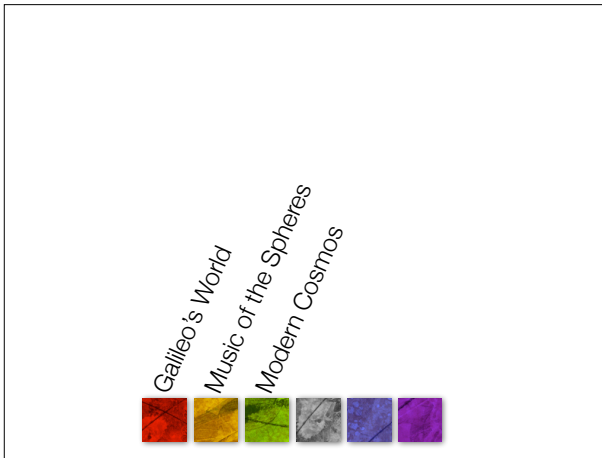
55

Music of the Spheres shows that it was possible then to live in a meaningful cosmos.



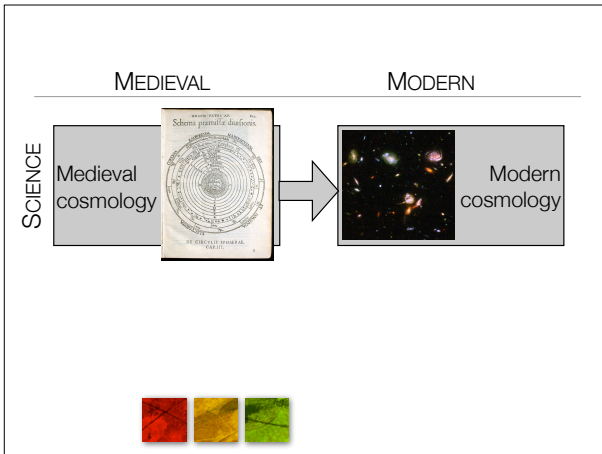
56

Is such a rich connection between reality and meaning still possible in the modern world?



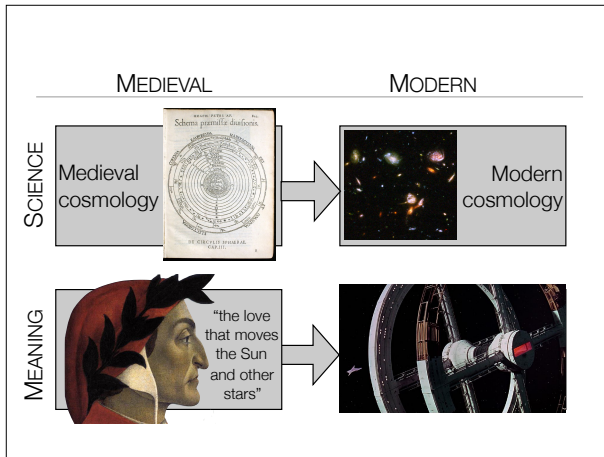
57

The science of cosmology has changed. We know the universe is not made of perfect celestial spheres. The spheres do not create a cosmic symphony. Is there room for music in modern cosmology?



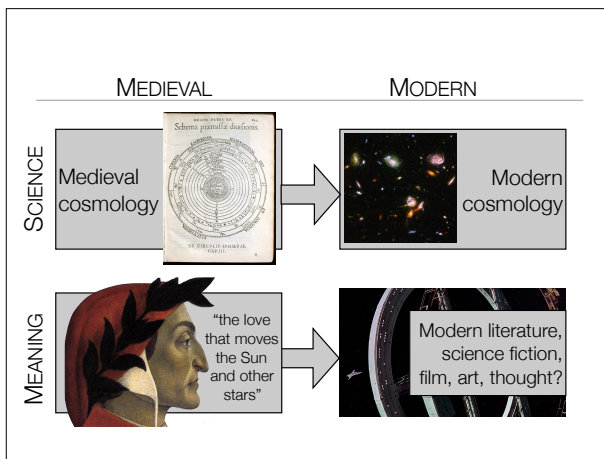
58

The musical spheres turned by love, according to Dante. Is the modern vision of the universe one filled with love?



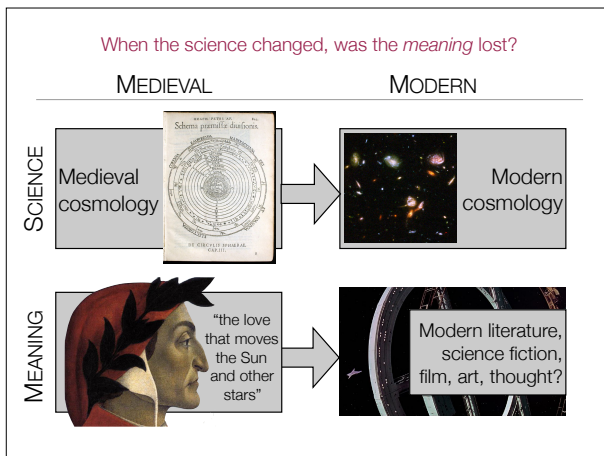
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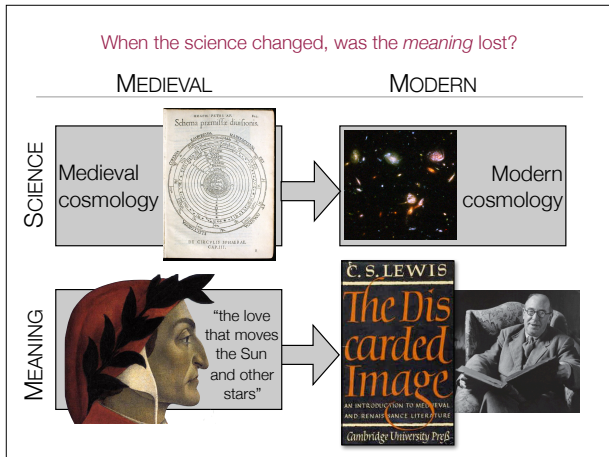
Do modern literature, science fiction, film, art and cultural thought invest the universe with love?



60

Or, when the science changed, somehow was the meaning lost?

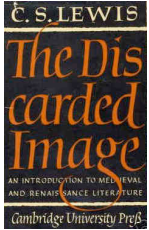







61

In a classic little work, *The Discarded Image*, C.S. Lewis penned a masterful introduction to the medieval cosmos and its imaginative sensibility. As a medieval scholar, Lewis believed that although the science of cosmology had changed greatly since medieval times, the medieval sensibility of the MEANING of the cosmos had been needlessly discarded.

C.S. Lewis, *The Discarded Image*



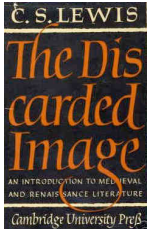
"The medieval universe, while unimaginably large, was also unambiguously finite.... The word 'small' as applied to Earth thus takes on a far more absolute significance. Again, because the medieval universe is finite, it has a shape...."




62

Read this little book if you want to understand the medieval cosmos that animates the imaginative literature of Dante, as well as of Lewis and Tolkien. Lewis writes:

C.S. Lewis, *The Discarded Image*



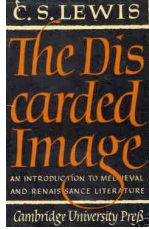
"... to look out on the night sky with modern eyes is like looking out over a sea that fades into mist, or looking about one in a trackless forest—trees forever and no horizon. To look up at the towering medieval universe is much more like looking at a great building. The 'space' of modern astronomy may arouse terror, or bewilderment or vague reverie; the spheres of the old present us with an object in which the mind can rest, overwhelming in its greatness but satisfying in its harmony."

63

Read this little book if you want to understand the medieval cosmos that animates the imaginative literature of Dante, as well as of Lewis and Tolkien. Lewis writes:

C.S. Lewis, *The Discarded Image*



- “You must go out on a starry night and walk about for half an hour trying to see the sky in terms of the old cosmology.... As a modern, you located the stars at a great distance. For distance you must now substitute that very special, and far less abstract, sort of distance which we call height.... the Medieval Model is vertiginous.”

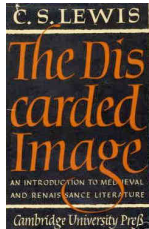
p. 98



64

If we’re trying to understand Dante, we might follow Lewis’ advice when he wrote: [read bold]

C.S. Lewis, *The Discarded Image*



- **Medieval cosmos (Dante/Kepler):** we are *finite*, placed in a larger and meaningful story.
- **Modern cosmos:** we are *small*, drifting in infinite space. Meaning and story are not built-in to the universe; we must create them ourselves.

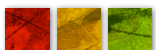
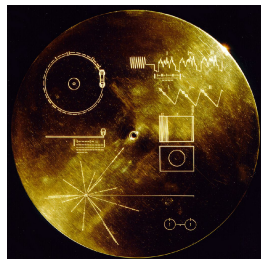


65

Lewis drew a contrast between medieval and modern sensibilities we might summarize as:

“Kepler’s Harmony of the Worlds,” in Laurie Spiegel, *The Expanding Universe* (Unseen Words, 2012).

Music honoring Kepler is now on board two spacecraft that are leaving the solar system: Laurie Spiegel’s tribute to Kepler’s *Harmonices mundi* was chosen to travel on the Voyager spacecraft Golden Records in 1977.

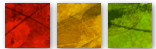
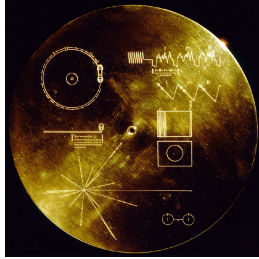


66

Another way to illustrate the contrast in sensibilities is to compare Laurie Spiegel’s version of Kepler to that of Jonathan Annis. Spiegel’s version is on board the Voyager spacecraft, launched in 1977, and now leaving the solar system to travel to worlds beyond. Listen to her version:

"Kepler's Harmony of the Worlds,"
in Laurie Spiegel, *The Expanding
Universe* (Unseen Words, 2012).

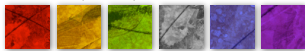
Music honoring Kepler is now on
board two spacecraft that are leaving
the solar system: Laurie Spiegel's
tribute to Kepler's *Harmonices mundi*
was chosen to travel on the Voyager
spacecraft Golden Records in 1977.



67

Spiegel, a pioneer of computer music, interpreted Kepler's laws in light of modern conceptions of science and the universe. In the words of one reviewer: "Spiegel's realization is bracing, menacing, and disorienting, the piercing tones not unlike a choir of air raid sirens. An alien life form encountering it on Voyager's Golden Record would conclude that our world was a maddening, maniacal place." Spiegel's tribute to Kepler may reach other worlds. Annis' suite, on the other hand, reaches back to the world of Kepler and the music of the spheres.

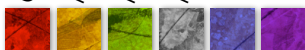
Galileo's World
Music of the Spheres
Modern Cosmos



68

So that's the dilemma raised by the modern scientific understanding of the cosmos.

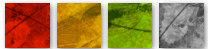
Galileo's World
Music of the Spheres
Modern Cosmos
Ransom Trilogy



69

How might Dante or Kepler think about meaning in the universe if they were writing today? Let's look at C.S. Lewis' Ransom trilogy as a guide.

C.S. Lewis



70

As most everyone knows, C.S. Lewis was a medieval scholar. Less known is that he was also an amateur astronomer. Lewis owned and regularly used a backyard telescope. In his letters and correspondence, he frequently mentions the weekly configuration of planets and seasonal appearance of constellations.

71



Lewis put his understanding of the medieval cosmos into a trilogy of three science-fiction books which shared a common central character named Ransom. The Ransom trilogy helps us moderns step back inside the medieval cosmos and imagine what it felt like to live in a world of meaning, suffused with love and hope.

C.S. Lewis, *Out of the Silent Planet*

- “he found it night by night more difficult to disbelieve in the old astrology: almost he felt, wholly he imagined, ‘sweet influence’ pouring or even stabbing into his surrendered body.... A nightmare, long engendered in the modern mind by the mythology that follows in the wake of science, was falling off him. He had read of ‘Space’: at the back of his thinking for years had lurked the dismal fancy.... Older thinkers had been wiser when they named it simply the heavens....” (Ransom, traveling to Mars, pp. 31-32.)



72

On Ransom’s first voyage into space:

73

C.S. Lewis, *Out of the Silent Planet*

- “If we could even effect in one percent of our readers a change-over from the conception of Space to the conception of Heaven, we should have made a beginning.”

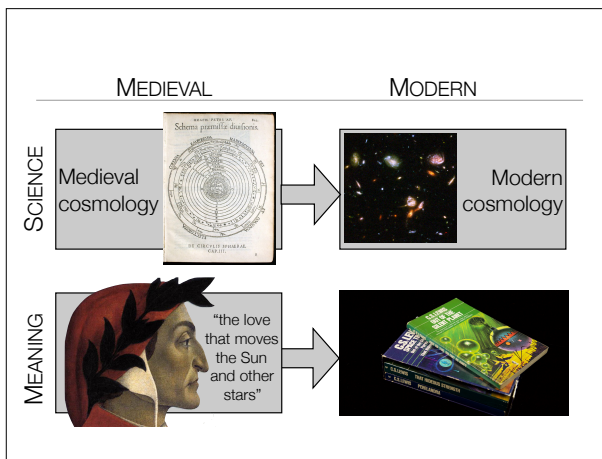
(Conversation between Ransom and Lewis, p. 154.)



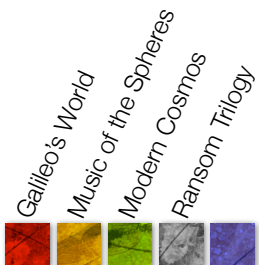
In a fictional conversation between Ransom and Lewis, they agreed:

74

The Ransom Trilogy, then, is more like Dante than modern visions such as 2001 A Space Odyssey. The Ransom trilogy is more like Kepler interpreted by Annis than Kepler interpreted by Spiegel.

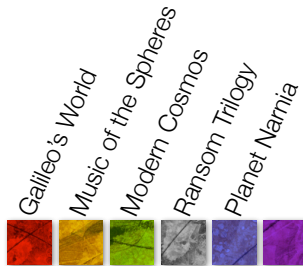


75



76

But what about Narnia?



77

Michael Ward



In his recent book, *Planet Narnia*, Michael Ward shows that the same aim underlay Lewis' series of Narnia books as well.

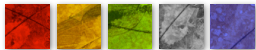
78

Tolkien made no secret of his extreme dislike of the Narnia stories. How could Father Christmas be portrayed in the same story that shows God as a Lion? These characters are disparate and do not belong together, he thought. Tolkien regarded Narnia as a confused and superficial mingling of different imaginative traditions, a "jumble" and a "hotch-potch" "full of inconsistencies."



Michael Ward, *Planet Narnia* (Oxford, 2008)

Chronicle of Narnia	Planet
The Lion, the Witch & the Wardrobe	?
Prince Caspian	?
Voyage of the Dawn Treader	?
The Silver Chair	?
The Horse and His Boy	?
The Magician's Nephew	?
The Last Battle	?



79

Ward answers Tolkien's objection. He demonstrates that each Chronicle is structured around the meaning of one of the planets in the medieval cosmos. Lewis crafted the Narnia stories not carelessly but with a plan and a vision; their cohesion is found in the symbolism of the planets. By conveying the medieval meaning of the planets, the Chronicles enable us to imagine today something of how medieval humans understood their

Jupiter



Jupiter, the King, produces in the earth, rather disappointingly, tin; this shining metal said different things to the imagination before the canning industry came in. The character he produces in men would now be very imperfectly expressed by the word 'jovial', and is not very easy to grasp; it is no longer, like the saturnine



80

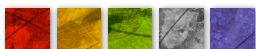
Let's start with Jupiter. Here is how Lewis described the meaning of Jupiter in *The Discarded Image*.

Jupiter



The Discarded Image

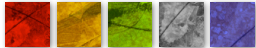
character, one of our archetypes. We may say it is *Kingly*; but we must think of a King at peace, enthroned, taking his leisure, serene. The Jovial character is cheerful, festive yet temperate, tranquil, magnanimous. When this planet dominates we may expect halcyon days and prosperity. In Dante wise and just princes go to his sphere when they die. He is the best planet, and is called The Greater Fortune, *Fortuna Major*.



81

Jupiter

Mild, and meadowy, as we mount further
Where rippled radiance rolls about us
Moved with music—measureless the waves'
Joy and jubilee. It is Jove's orbit,
Filled and festal, faster turning
With arc ampler. From the Isles of Tin
Tyrian traders, in trouble steering
Came with his cargoes; the Cornish treasure
That his ray ripens. Of wrath ended
And woes mended, of winter passed
And guilt forgiven, and good fortune

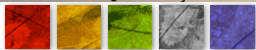


82

Similarly, Lewis described Jupiter with these lines in a poem called The Planets: “Joy and jubilee...”

Jupiter

Jove is master; and of jocund revel,
Laughter of ladies. The lion-hearted,
The myriad-minded, men like the gods,
Helps and heroes, helms of nations
Just and gentle, are Jove's children,
Work his wonders. On his wide forehead
Calm and kingly, no care darkens
Nor wrath wrinkles: but righteous power
And leisure and largess their loose splendours
Have wrapped around him—a rich mantle
Of ease and empire. Up far beyond

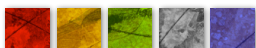
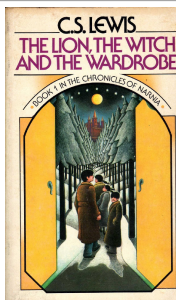


83

So which Narnia Chronicle sounds like Jupiter?

The Lion, the Witch & the Wardrobe

- Kingly: Aslan as Lion = King
- Jovial: Father Christmas
- “Of wrath ended and woes mended, of winter passed and guilt forgiven...”
- Heaven of wise and just princes: Cair Paravel
- Ward: “Joviality is turned into a story”



Jupiter

84

Other lions appear in LWW, none appear in any other Chronicle.
Ward: “Father Christmas is, in modern culture, the Jovial character par excellence, loud-voiced, red-faced and jolly.”

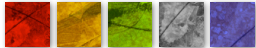
Sun



85

Read. Which book symbolizes the Sun?

Sol is the point at which the concordat between the mythical and the astrological nearly breaks down. Mythically, Jupiter is the King, but Sol produces the noblest metal, gold, and is the eye and mind of the whole universe. He makes men wise and liberal and his sphere is the Heaven of theologians and philosophers. Though he is no more metallurgical than any other planet his metallurgical operations are more often mentioned than theirs. We read in Donne's *Allophanes and Idios* how soils which the Sun could make into gold may lie too far from the surface for his beams to take effect (61). Spenser's Mammon brings his hoard out to 'sun' it. If it were already gold, he would have no motive for doing this. It is still hore (grey); he suns it that it may become gold.¹ Sol produces fortunate events.



Sun



86

The heaven's highway hums and trembles,
Drums and dindles, to the driv'n thunder
Of Sol's chariot, whose sword of light
Hurts and humbles; beheld only
Of eagle's eye. When his arrow glances
Through mortal mind, mists are parted
And mild as morning the mellow wisdom
Breathes o'er the breast, broadening eastward
Clear and cloudless. In a clos'd garden

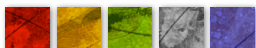


Sun



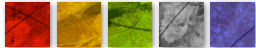
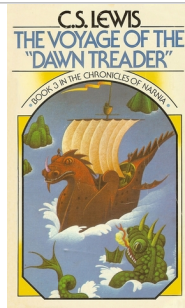
87

Clear and cloudless. In a clos'd garden
(Unbound her burden) his beams foster
Soul in secret, where the soil puts forth
Paradisaal palm, and pure fountains
Turn and re-temper, touching coolly
The uncomely common to cordial gold;
Whose ore also, in earth's matrix,
Is print and pressure of his proud signet
On the wax of the world. He is the worshipp'd male
The earth's husband, all-beholding,
Arch-chemic eye. But other country
Doth not thus glorify toward him



Voyage of the Dawn Treader

- “Dawn” - voyage to the Sun
 - Eastern sea a drinkable light
- Gold: Midas island
- Ward: “The ship’s flag bears the picture of a ‘golden lion’ and inside the stern cabin there is a ‘flat gold image of Aslan. In the other Chronicles, Aslan’s image is usually Jovial red...’



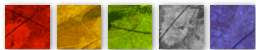
Sol

Read. So which book symbolizes the Moon?

Moon



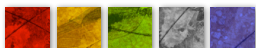
Her metal is silver. In men she produces wandering, and that in two senses. She may make them travellers so that, as Gower says, the man born under Luna will ‘seche manye londes strange’ (vii, 747). In this respect the English and the Germans are much under her influence (*ibid.* 751-4). But she may also produce ‘wandering’ of the wits, especially that periodical insanity which was first meant by the word lunacy, in which the patient, as Langland says (C x, 107), is ‘mad as the mone sit, more other lasse’. These are the ‘dangerous, unsafe lunes’ of the *Winter’s Tale* (ii, ii, 30); whence (and on other grounds)



Moon

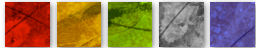


Lady LUNA, in light canoe,
By friths and shallows of fretted cloudland
Cruises monthly; with chrism of dew
And drench of dream, a drizzling glamour,
Enchants us—the cheat! changing sometime
A mind to madness, melancholy pale,
Bleached with gazing on her blank count’nance
Orb’d and ageless. In earth’s bosom
The shower of her rays, sharp-feathered light
Reaching downward, ripens silver,
Forming and fashioning female brightness,
—Metal maidenlike. Her moist circle
Is nearest earth. Next beyond her



The Silver Chair

- Silver
- Mental wandering
- Cloudiness: Lack of clarity, dulling the imagination; how to maintain belief in an environment that wears us down.



Luna

91

As in Christ's descent into our world, so Jill and Eustance descend into the Underworld of Narnia and fight to ward off mental wandering and discouragement.

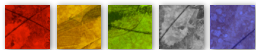
Mercury



Mercury produces quicksilver. Dante gives his sphere to beneficent men of action. Isidore, on the other hand, says this planet is called Mercurius because he is the patron of profit (*mercibus praest*).¹ Gower says that the man born under Mercury will be 'studious' and 'in writinge curious',

bot yit with somdel besnesse
his hert is set upon richesse.
(*Confessio*, vii, 765.)

The Wife of Bath associates him especially with clerks (D 706). In Martianus Capella's *De Nuptiis*² he is the bridegroom of Philologia—who is *Learning* or even Literature rather than what we call 'philology'. And I am



92

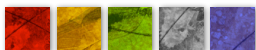
Read.

Mercury



The Discarded Image

pretty sure that 'the Words of Mercury' contrasted with 'the Songs of Apollo' at the end of *Love's Labour's Lost* are 'picked', or rhetorical prose. It is difficult to see the unity in all these characteristics. 'Skilled eagerness' or 'bright alacrity' is the best I can do. But it is better just to take some real mercury in a saucer and play with it for a few minutes. *That* is what 'Mercurial' means.



93

Read.

Mercury

MERCURY marches;—madcap rover,
Patron of pilfrers. Pert quicksilver
His gaze begets, goblin mineral,
Merry multitude of meeting selves,
Same but sundered. From the soul's darkness,
With wreathèd wand, words he marshals,
Guides and gathers them—gay bellwether
Of flocking fancies. His flint has struck
The spark of speech from spirit's tinder,
Lord of language! He leads forever
The spangle and splendour, sport that mingles
Sound with senses, in subtle pattern,
Words in wedlock, and wedding also
Of thing with thought. In the third region
VENUS VANCE

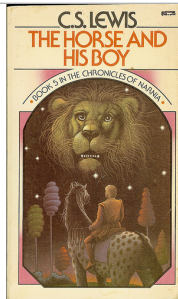


94

Read. So which book seems to reflect Mercurial characteristics?

The Horse and His Boy

- Quicksilver
- "Merry multitude of meeting selves, same but sundered"
 - Twins (Gemini):
 - Cor = Shasta, and Bree (Castor)
 - Corin (Pollux)
 - Shasta and Aravis
 - "there was only one lion"
- Speech: Narnian poetry vs. dull, plodding Calormene learning



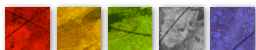
Mercury

95

Continually joining and parting, meeting and leaving, uniting and separating. Mercury god of the crossroads.
Many pairs and twins appear throughout the story.
Multivalent dimensions of language, alacrity of thought, related to the actuality behind words.
Speed: pace of story
Learning: Shasta educated
Thieves: Mercury the god of thieves. Shasta goes on raids.
God speaks: Explicitly Trinitarian: One Lion in a threefold Myself.

Venus

In beneficence Venus stands second only to Jupiter; she is *Fortuna Minor*. Her metal is copper. The connection is not clear till we observe that Cyprus was once famed for its copper mines; that copper is *cyprum*, the Cyprian metal; and that Venus, or Aphrodite, especially worshipped in that island, was *Kúmpis*, the Lady of Cyprus. In mortals she produces beauty and amorousness; in history, fortunate events. Dante makes her sphere the Heaven not, as we might expect from a more obvious poet, of the charitable, but of those, now penitent, who in this life loved greatly and lawlessly. Here he meets Cunizza, four times a wife and twice a mistress, and Rahab the harlot (*Paradiso*, ix). They are in swift, incessant flight (viii, 19-27)—a likeness in unlikeness to the impenitent and storm-borne lovers of *Inferno*, v.



96

Heaven of the penitent; read for Lent.
Venus the most complex of the planets. Which book corresponds to Venus?

Venus



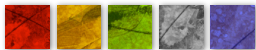
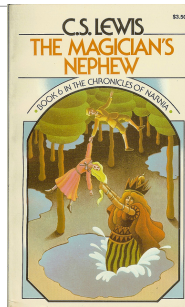
97

VENUS voyages . . . but my voice falters;
Rude rime-making wrongs her beauty,
Whose breasts and brow, and her breath's sweetness
Bewitch the worlds. Wide-spread the reign
Of her secret sceptre, in the sea's caverns,
In grass growing, and grain bursting,
Flower unfolding, and flesh longing,
And shower falling sharp in April.
The metal copper in the mine reddens
With muffled brightness, like muted gold,
By her fingers form'd. Far beyond her



The Magician's Nephew

- Copper
- Venus and creation, generation
- Venus and levity, humor
- Venus as Mother
- Jadis an anti-Venus



Venus

98

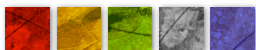
Mars



99

Read. Iron, sturdy hardiness, wars. So which book seems like Mars?

Mars makes iron. He gives men the martial temperament, 'sturdy hardiness', as the Wife of Bath calls it (D612). But he is a bad planet, *Infortuna Minor*. He causes wars. His sphere, in Dante, is the Heaven of martyrs; partly for the obvious reason but partly, I suspect, because of a mistaken philological connection between *martyr* and *Martem*.



100

Mars

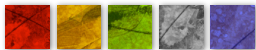
Arch-chemic eye. But other country
 Dark with discord dins beyond him,
 With noise of nakers, neighing of horses,
 Hammering of harness. A haughty god
 MARS mercenary, makes there his camp
 And flies his flag; flaunts laughingly
 The graceless beauty, grey-eyed and keen,
 —Blond insolence—of his blithe visage
 Which is hard and happy. He hews the act,
 The indifferent deed with dint of his mallet
 And his chisel of choice; achievement comes not
 Unhelped by him; —hired gladiator



101

Mars

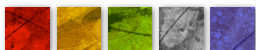
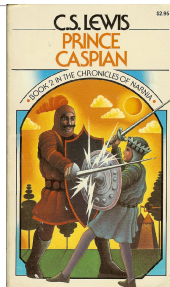
Of evil and good. All's one to Mars,
 The wrong righted, rescued meekness,
 Or trouble in trenches, with trees splintered
 And birds banished, banks fill'd with gold
 And the liar made lord. Like handiwork
 He offers to all—earns his wages
 And whistles the while. White-feathered dread
 Mars has mastered. His metal's iron
 That was hammered through hands into holy cross,
 Cruel carpentry. He is cold and strong,
 Necessity's son. Soft breathes the air



102

Prince Caspian

- “Great War of Deliverance” to drive Miraz out of Narnia
- Medieval ideal of chivalry and Knighthood
- “Martial” appears twice in Prince Caspian, and zero times in all the other Chronicles.
- Mars Silvanus:
 - March (month of Greenroof)
 - Wood (warrior trees)



Mars

Saturn



103

Now we come to Saturn, the outermost planet:

Saturn. In the earth his influence produces lead; in men, the melancholy complexion; in history, disastrous events. In Dante his sphere is the Heaven of contemplatives. He is connected with sickness and old age. Our traditional picture of Father Time with the scythe is derived from earlier pictures of Saturn. A good account of his activities in promoting fatal accidents, pestilence, treacheries, and ill luck in general, occurs in *The Knight's Tale* (A 2463 sq.). He is the most terrible of the seven and is sometimes called The Greater Infortune, *Infortuna Major*.



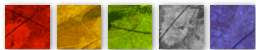
Saturn



104

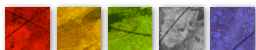
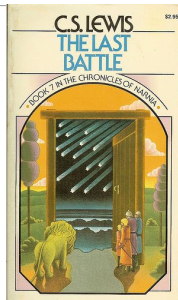
Which Narnia Chronicle is left? Does it correspond with Saturn?

Is as tin tinkling. In tattered garment,
Weak with winters, he walks forever
A weary way, wide round the heav'n,
Stoop'd and stumbling, with staff groping,
The lord of lead. He is the last planet
Old and ugly. His eye fathers
Pale pestilence, pain of envy,
Remorse and murder. Melancholy drink
(For bane or blessing) of bitter wisdom
He pours for his people, a perilous draught
That the lip loves not. We leave all things
To reach the rim of the round welkin,
Heaven's hermitage, high and lonely.



The Last Battle

- "In the last days of Narnia..."
- Awakening of Father Time
- Infortuna Major:
 - Bleak tone
 - Cold quality
 - No quest; passive characters at the mercy of events beyond their control
- Divine presence in suffering

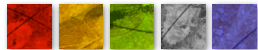


Saturn

105

Michael Ward, *Planet Narnia* (Oxford, 2008)

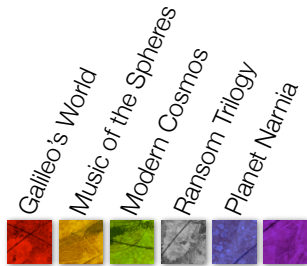
Chronicle of Narnia	Planet
The Lion, the Witch & the Wardrobe	Jupiter
Prince Caspian	Mars
Voyage of the Dawn Treader	Sol
The Silver Chair	Luna
The Horse and His Boy	Mercury
The Magician's Nephew	Venus
The Last Battle	Saturn



106

Ward explains each planet's symbolism at length, drawing parallels with each corresponding Chronicle on both literary and theological grounds. As a result, a modern reader may recover a sense of meaning in the cosmos. It takes all 7 planets together, rather than any one of them in isolation, to provide a satisfying appreciation of God's

107



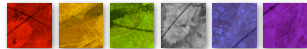
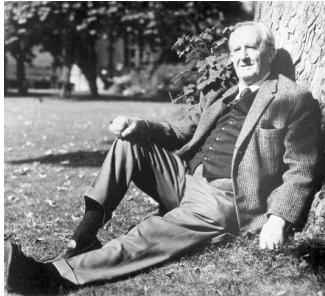
108

Let's close with a postscript about Lewis' friend, J.R.R. Tolkien.



109

J.R.R. Tolkien

kerrysloft.com
(search for Tolkien)

The medieval sense of the cosmos common to Dante, Kepler and Lewis was also shared by J.R.R. Tolkien. In a famous conversation, Lewis and Tolkien agreed to write works of imaginative literature that would recover the medieval sensibility for modern times. Lewis would write of other worlds, Tolkien of other times. Lewis produced the Ransom trilogy and the Narnia Chronicles, Tolkien the Lord of the Rings. To say more

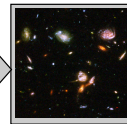
110

The Discarded Image?

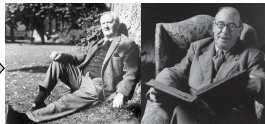
MEDIEVAL

MODERN

SCIENCE

Medieval
cosmologyModern
cosmology

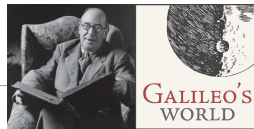
MEANING



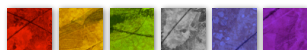
"the love that moves the Sun and other stars"

Lewis and Tolkien both show how the meaning of the medieval cosmos might be recovered for us moderns, through imagination. If you are among the many who enjoy reading the imaginative works of Tolkien or Lewis, then you probably agree that they have succeeded in recovering "the discarded image." If we ask the question, as the science changed, did the MEANING of the cosmos also have to be discarded? For Lewis and

111

Music of the Spheres:
Planet Narnia meets Galileo's World

- Why is a book by C.S. Lewis on the recommended reading list for Galileo's World exhibition?
- Why do we recommend reading a book about the Chronicles of Narnia in order to understand the medieval cosmos?



I hope that now, you understand why we recommend The Discarded Image as background reading for the Music of the Spheres gallery of Galileo's World. We even have a photo of the Ransom Trilogy in our public materials for that gallery. And we recommend reading Michael Ward's book, Planet Narnia, in order to understand the medieval cosmos through Lewis' many publications, whether scholarly or literary.

Give up ignorance for Lent
Further reading



Lent: Give up “ignorance of mathematics” for Lent by pondering the Music of the Spheres. Come visit Galileo’s World. Read any of these books. Search our hearts and pray for wisdom to bring worlds together: world of faith and meaning, with the world of vocation/scholarship. I’ve just placed a longer version of this talk on