

DISCUSSION GUIDE FOR FAITH COMMUNITIES



EXTRAORDINARY PREDICTIONS REQUIRE EXTRAORDINARY EVIDENCE

LUMINOUS

A Film by Sam Smartt



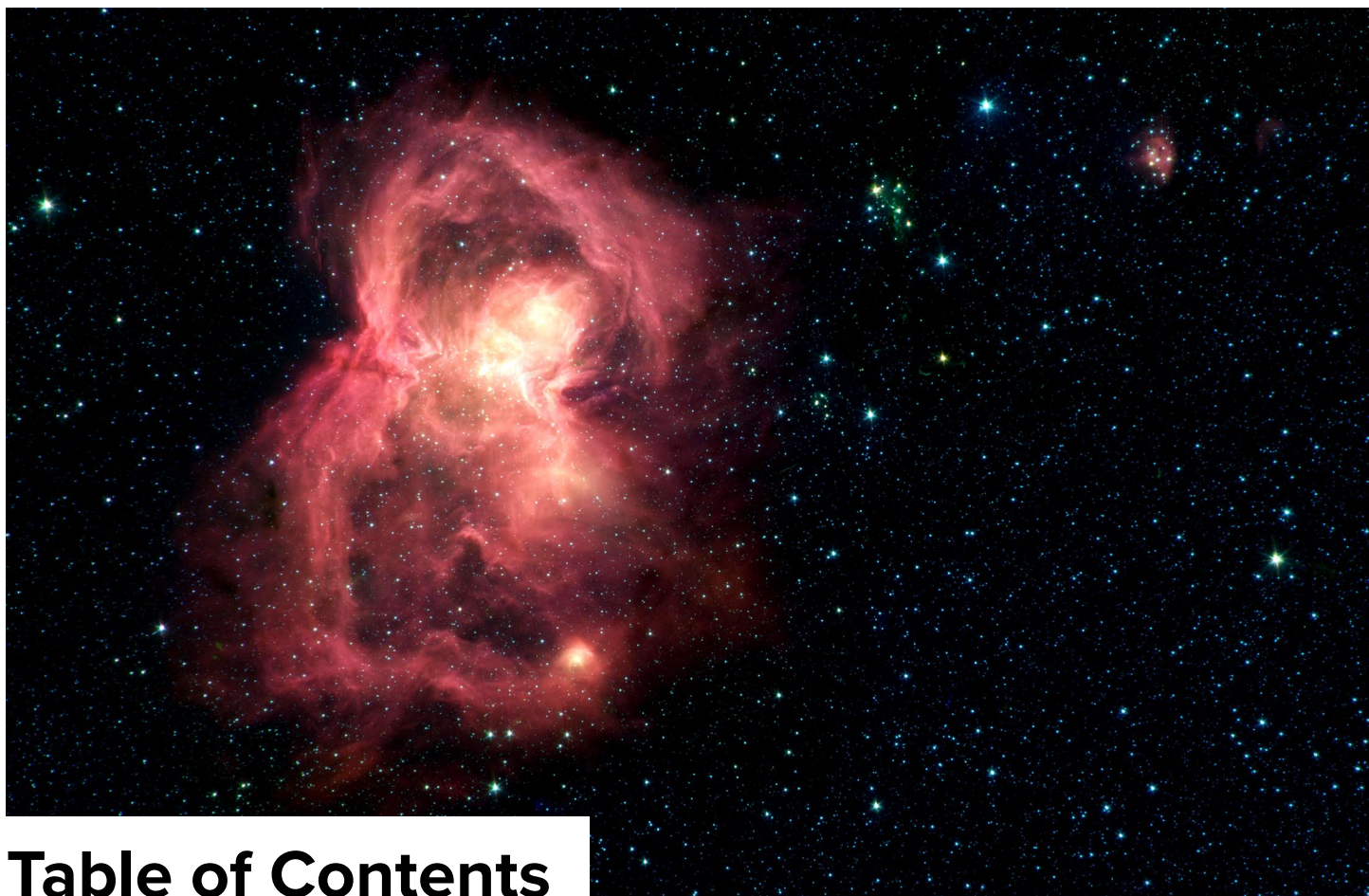


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Welcome!

How to Use this Guide

This discussion guide is designed to support you and your faith community as you watch and engage with Sam Smartt’s documentary film **LUMINOUS**.

LUMINOUS is a story about scientific truth-seeking that is also a portrait of a man of faith. The film follows Dr. Larry Molnar, an astronomer and committed Christian, as he embarks on an odyssey of scientific discovery that is also a spiritual journey. Along the way, the film raises compelling questions for people of faith.

HOW DOES OUR FAITH SUPPORT US THROUGH ADVERSITY, SETBACK AND DISAPPOINTMENT?

Throughout the film, Larry Molnar faces personal adversity and professional setbacks. Time and again, his faith provides strength and meaning in the face of these challenges. Larry’s journey invites us to reflect on how our faith supports us in times of trial and adversity.

HOW CAN OUR JOBS OR CAREERS BE AN EXPRESSION OF OUR FAITH?

In the film, we learn that Larry understands his vocation as a scientist to be an expression of his Christian faith. His story illustrates the sense of purpose, meaning and joy that are possible when our career is powerfully aligned with our faith. The film invites us to consider whether our own careers are, or could be, a way to live out our faith.

HOW CAN FAITH AND SCIENCE INSPIRE OUR CURIOSITY, HUMILITY AND WONDER BEFORE THE UNIVERSE?

Popular culture often portrays scientists as “experts” who are supremely confident in their knowledge, and religious people as “rigid” or “dogmatic” in their faith. Larry breaks these stereotypes, bringing to both his science and his faith the values of intellectual humility, curiosity, and wonder. How might these values shape our own attempts to understand our world?

HOW DO WE UNDERSTAND THE RELATIONSHIP BETWEEN SCIENCE AND RELIGION?

Ultimately, **LUMINOUS** raises broader questions of how we understand the relationship between science and religion. Public discourse often portrays science and religion as perpetually and intractably in conflict with one another. In fact, religion and science share a complex and varied history that is sometimes conflicted, but also marked by moments of mutual understanding and collaboration. **LUMINOUS** invites us to consider whether and how science and religion can be for us mutually enriching paths to truth and understanding.

* * *

AFTER VIEWING THE FILM, we invite you and your faith community to use this guide to engage with these questions and more. This guide was created for use by a diverse range of faith communities; we invite you to adapt the content that follows in ways that best suit your specific context.

Page 4 of this guide offer questions to guide personal reflection and group conversation about **LUMINOUS**. The guide also suggests several spiritual practices (p. 5) to deepen your reflection on the film’s themes.

If you wish to examine further the relationship between science and religion in our lives and culture, then consider the section called Are Science and Religion “at War”? A Brief History of a Powerful Metaphor on pp. 6-7, as well as a timeline (pp. 10-11) that highlights the frequent intersection of astronomical achievement and religious inquiry. Finally, the guide points you to resources for further learning (p. 8-9).

We invite you to use this guide in whatever ways are helpful to you and your community, and we sincerely hope that—together with the film—it will enrich both your faith and your understanding.



How to watch LUMINOUS

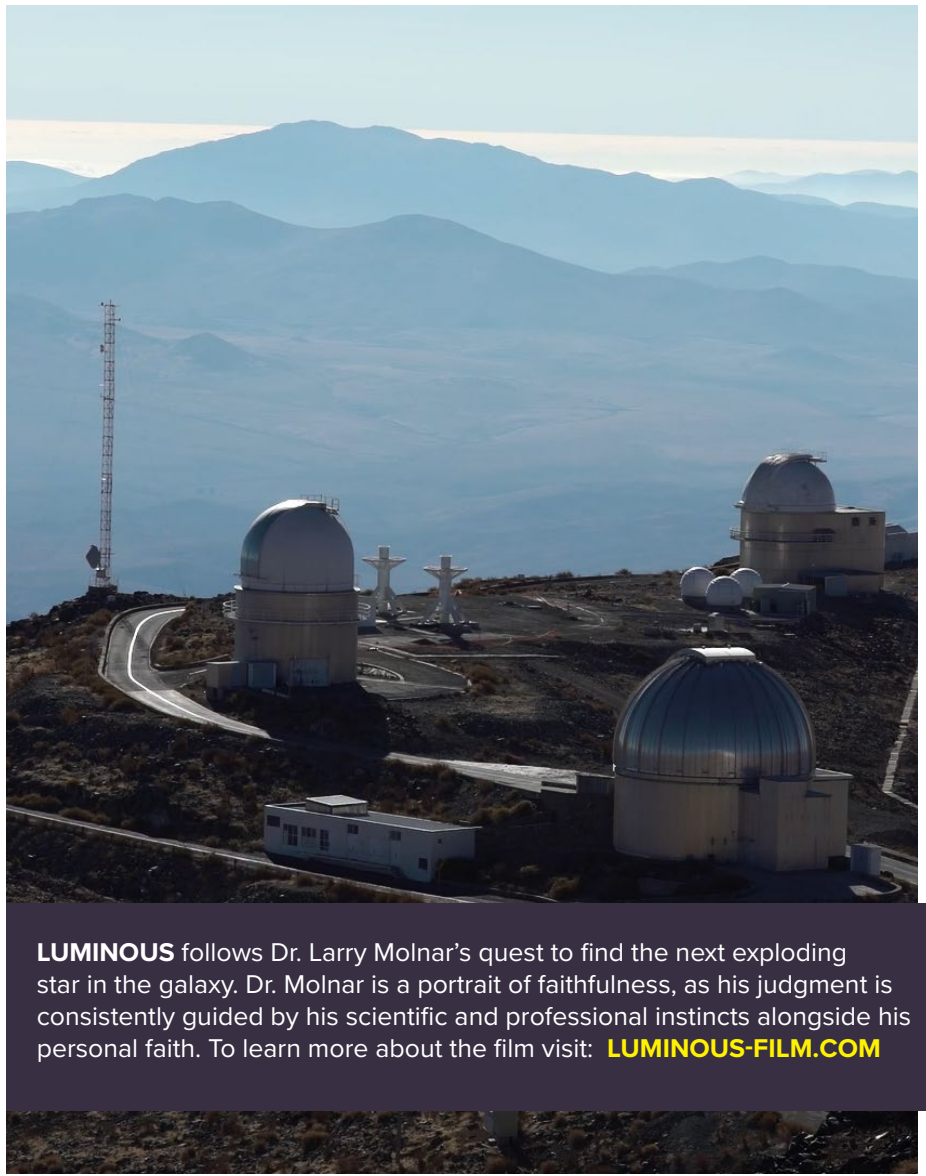
LUMINOUS is available for educational and community-based screenings and for college & university classrooms. For more information about accessing the full film and download engagement materials, please visit: LUMINOUS-FILM.COM/SCREENINGS

About the Film

LUMINOUS is a new documentary feature film that takes audiences deep into the process of conducting modern, professional science, guided by a protagonist whose humility, determination, and faith will help to deepen understanding of the scientific process and build trust in its broadly accepted outcomes.

Astronomy Professor Larry Molnar believes he can find the unfindable – a star that is about to explode...

When Dr. Molnar and a small team of students stumble across a strange star, they embark on a dramatic journey of scientific discovery, which brings the unlikely team into the international spotlight. But others in the astronomical community are skeptical, and Larry's professional reputation hangs in the balance.



LUMINOUS follows Dr. Larry Molnar's quest to find the next exploding star in the galaxy. Dr. Molnar is a portrait of faithfulness, as his judgment is consistently guided by his scientific and professional instincts alongside his personal faith. To learn more about the film visit: LUMINOUS-FILM.COM



“Science is not only compatible with spirituality; it is a profound source of spirituality...The notion that science and spirituality are somehow mutually exclusive does a disservice to both.”

- Carl Sagan



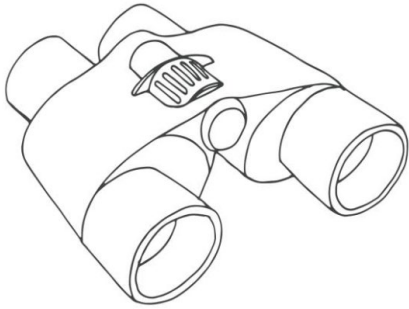
Questions for Reflection and Conversation

After watching LUMINOUS, we invite you to use the following questions to facilitate personal reflection and group discussion. Feel free to select and/or adapt questions to reflect the interests and curiosity of you and your community.

1. The film's title, LUMINOUS, means "bright" or "shining." It is a word with both scientific and religious overtones. Why do you think the film was given this title? What about the film did you find luminous?
2. How would you describe the relationship between Larry Molnar's faith and his vocation as a scientist? How would you describe the relationship between your own job/career and your faith?
3. What role do doubt, uncertainty, and humility play in this story of seeking scientific truth? How do they ultimately lead to discovering the truth about this star? What role do these same qualities play in your own truth-seeking? What role do they play in your faith?
4. Larry is drawn to astronomy in part because it allows him to discover more about God's world. How does your experience of or relationship with the natural world connect you to God or to your sense of spirituality?
5. LUMINOUS presents an insider look at the real world process of scientific research. Did anything surprise you about the process?
6. Throughout the film, Larry faces adversity, disappointment and loss. How does his faith support him through these challenges? How does your faith support you through adversity?
7. What risks does Larry take in the film? Share a story of a time when you took a risk for something you believed in. What gave you the courage to risk?
8. Larry's former chaplain at Harvard sums up Larry's character with one word, faithfulness. Where do you see examples of Larry's faithfulness in the film? To what or whom are you faithful?
9. How does Larry's Christian faith shape his understanding of his own value as a person, and the value of the universe and natural world? How does this resonate (or not) with your own faith?
10. Did the movie change or shape how you, as a person of faith, understand the relationship between science and religion? If so, how?

Practices For Spiritual Reflection

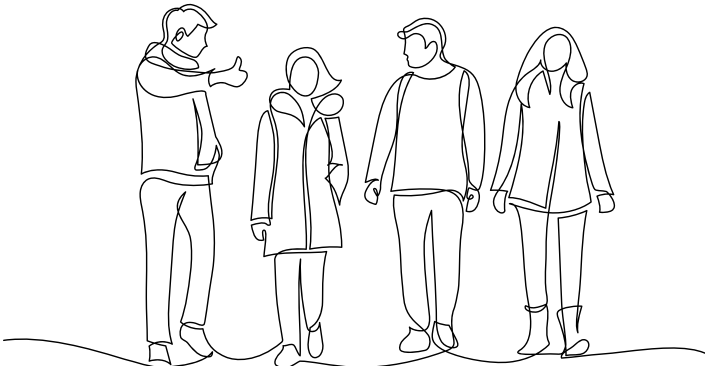
Here are three simple practices that can help you reflect spiritually on some of the film's core themes. As with the questions on the previous pages, feel free to adapt or further contextualize these practices with resources from your own faith tradition, such as prayers or appropriate scripture readings.



STARGAZING

Cultivate wonder, awe and humility.

Before bedtime on a clear night, go outside and sit or lie down on the ground. (You might want to place a towel or blanket beneath you.) Close your eyes and take three slow, deep breaths. Feel the places where your body makes contact with the earth. Notice the sounds around you. Notice the smell of the night air. Now open your eyes and look at the sky. Notice the light of the stars, moon, and planets and other objects. Notice if any of the lights are moving? Notice the dark of the night sky. Consider the vast expanse of the universe. Consider your place in that vast expanse. Notice how it makes you feel. Give thanks and go to bed.



MEDITATIVE NATURE WALK

Connect with your gratitude for the natural world.

Set aside at least a half hour to walk in nature. Before you begin, take three slow, deep breaths. As you breathe, set an intention for gratitude by offering a brief prayer or

simply saying: *Gratitude in every step*. Now begin walking at a slow, easy pace that gives you time to consider your surroundings. Throughout the walk, engage your senses. **Look:** If you notice that something attracts you visually, stop and look. Notice its color, shape, appearance. After looking for a while, close your eyes and try to create a mental "snapshot" of what you saw. **Listen:** Pause, close your eyes for a minute, and listen. Notice the sounds that come to you from near and far. **Smell:** Pause, close your eyes, and smell. Notice the different smells of the world around you. **Touch:** Pause and gently touch something that draws your attention: a tree's bark, a dry leaf, the lichen growing on a stone. Notice its texture and feel.

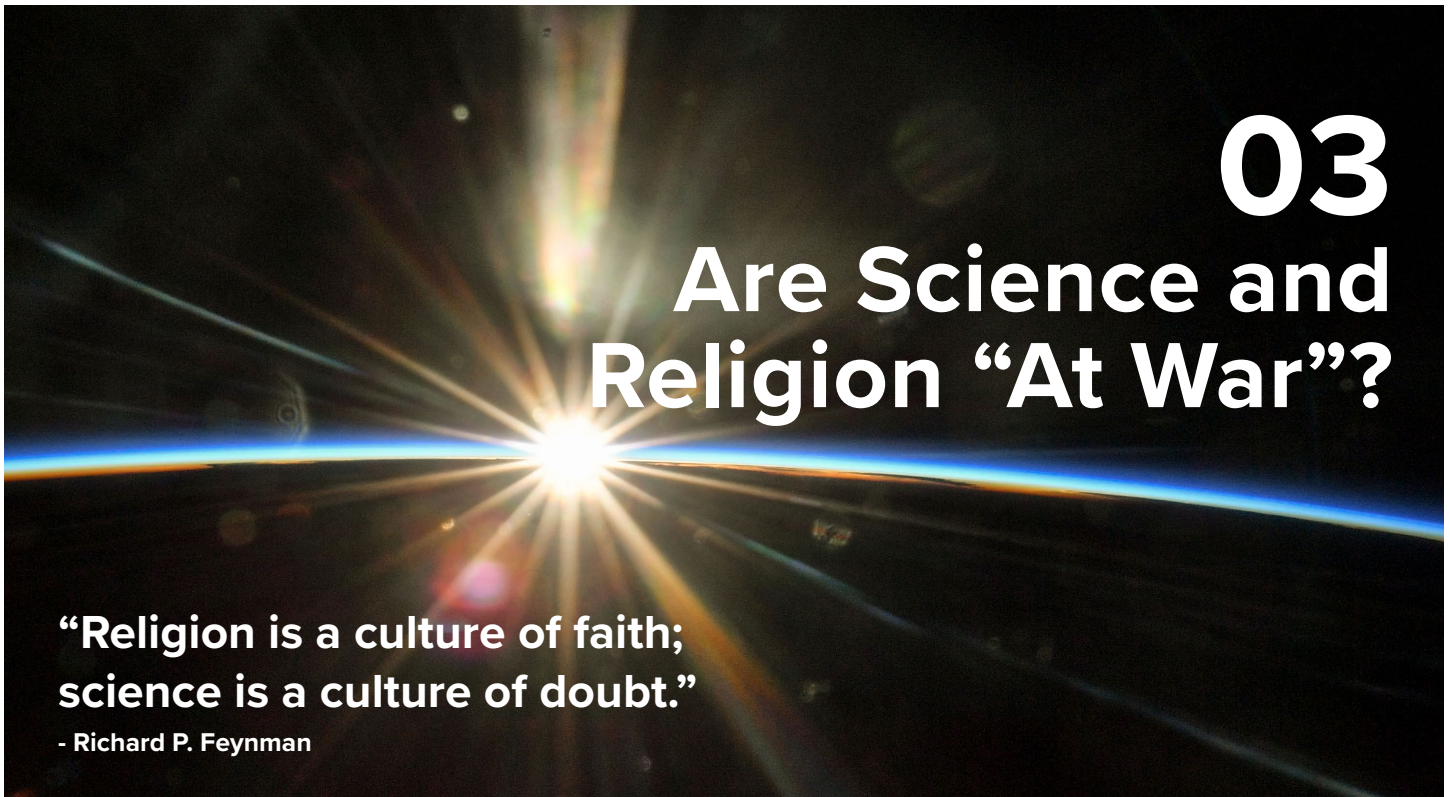
At the end of the walk, recall the moments for which you are grateful. Offer a simple prayer of thanksgiving, or say again: *Gratitude in every step*.



SPIRITUAL JOURNALING

Reflect on how the film touched your spirit.

Choose a question from pages 5 and 6 that feels especially important to your own spiritual journey. Write the question at the top of a blank sheet of paper, or in your journal, then respond to the question by writing down everything that comes to your mind. Allow yourself to freely associate. Even if it's not a complete or coherent thought, simply capture on paper everything that emerges for you. Write for five minutes. When you're done, look back over what you've written and circle the words or phrases that feel most significant to you. If you have time, write one of the circled phrases at the top of another sheet of paper and repeat the process.



03

Are Science and Religion “At War”?

**“Religion is a culture of faith;
science is a culture of doubt.”**

- Richard P. Feynman

A Brief History of a Powerful Metaphor

Public discourse often portrays science and religion as perpetually and intractably in conflict, or even “at war.” But where did this idea come from? And is it an accurate characterization of the relationship between science and faith?

In America, this so-called “warfare metaphor” dates back to the late 19th century. In 1896, the scholar, statesman and first president of Cornell University, Andrew Dickson White, published his two-volume, 900-page, *History of the Warfare of Science with Theology in Christendom*. In it, White cites numerous episodes of conflict between science and religion, including the Roman Catholic Church’s 1633 arrest of Galileo, and religious opposition to Darwin’s theory of evolution.

White previewed the thesis of his book in an 1874 article published in *Popular Science Monthly*:

In all modern history, interference with science in the supposed interest of religion, no matter how conscientious such interference may have been, has resulted in the direst evils both to religion and to

science—and invariably. And, on the other hand, all untrammelled scientific investigation, no matter how dangerous to religion some of its stages may have seemed, for the time, to be, has invariably resulted in the highest good of religion and of science.

In that same year, the scientist John W. Draper made a similar argument in his *History of The Conflict Between Religion and Science*.

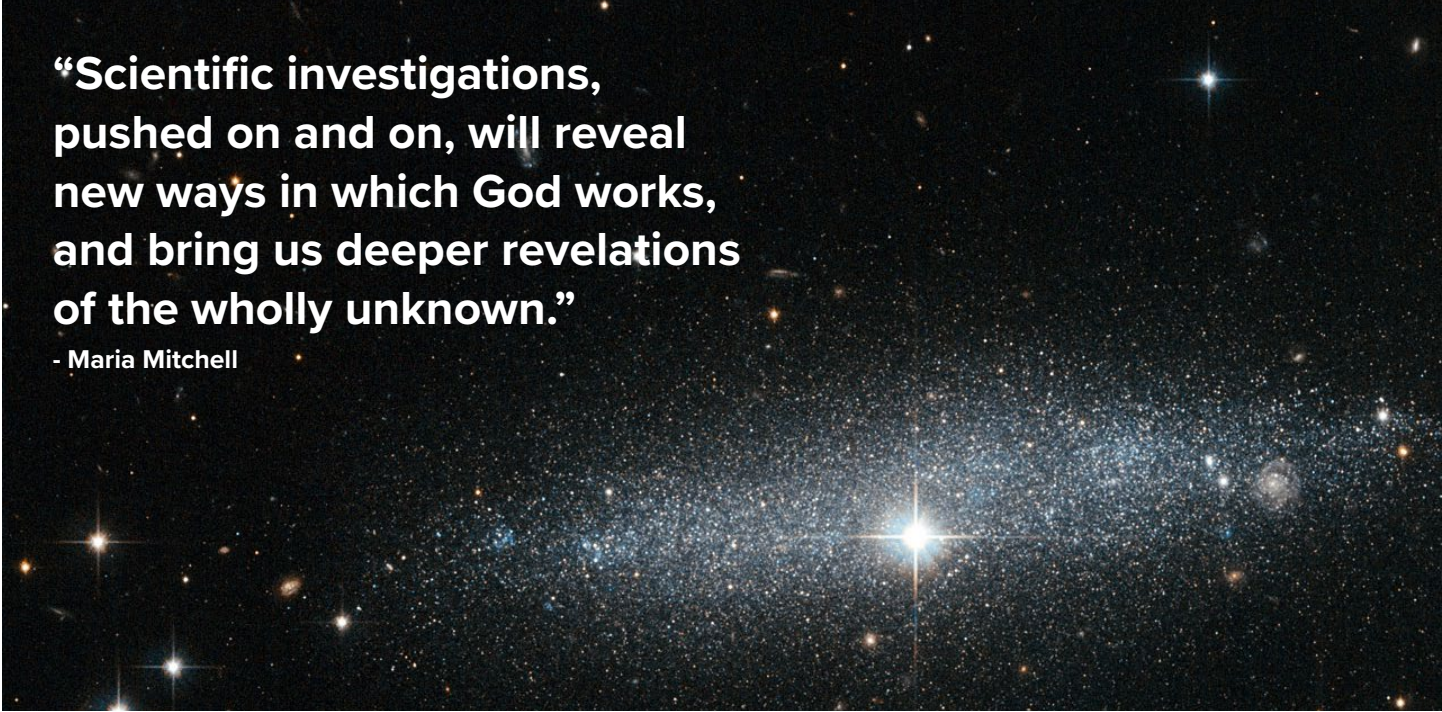
The history of science is not a mere record of isolated discoveries; it is a narrative of the conflict of two contending powers, the expansive force of the human intellect on one side, and the compression arising from traditional faith and human interests on the other.

Together, these two authors popularized the notion of an unceasing “conflict” or “war” between science and religion. Historians and scientists have long pointed out the flaws in the histories told by White and Draper. They argue that the historical record instead reveals a complex, ever-changing and nuanced relationship between science and religion; a relationship characterized as much by moments of collaboration and harmony as by conflict. For examples of this complex relationship, please refer to the timeline of the history of astronomy and religion presented on the following pages.

While White’s and Draper’s histories have long been discredited, most scholars agree that the narrative of conflict and warfare that they popularized continues to shape how our culture views the relationship between science and religion. Think, for instance, of news stories about religiously-based vaccine hesitancy, religious opposition to stem-cell research, or school board debates over the teaching of evolution. A 2021 survey by the Pew Charitable Trust found that 56% of Americans say there generally is conflict between science and religion. Interestingly, the perception of conflict is greater among those Americans who identify as religiously “unaffiliated.” For instance, only 16% of Christians responded that their religious beliefs “often” conflict with science.

WHAT IS YOUR EXPERIENCE?

- Can you point to examples of the presence of the “warfare metaphor” in recent history and culture? If so, where?
- In your own experience, how have you seen science and faith at war with one another, and how have you seen them collaborate and work in synergy together?”
- What possibilities for the relationship between science and religion are forsaken if “warfare” remains the dominant narrative?
- What word, phrase or metaphor might more accurately describe the relationship between science and religion?
- What word, phrase or metaphor best describes how LUMINOUS portrays this relationship?



**“Scientific investigations,
pushed on and on, will reveal
new ways in which God works,
and bring us deeper revelations
of the wholly unknown.”**

- Maria Mitchell

Sources

Mark Noll, “A.D. White’s ‘Warfare Science and Theology’” at [BIOLOGOS.ORG/ARTICLES/A-D-WHITES-WARFARE-BETWEEN-SCIENCE-AND-THEOLOGY](https://biologos.org/articles/a-d-whites-warfare-between-science-and-theology).

The Pew Charitable Trust, “On the Intersection of Science and Religion” at [PEWTRUSTS.ORG/EN/TREND/ARCHIVE/WINTER-2021/ON-THE-INTERSECTION-OF-SCIENCE-AND-RELIGION](https://pewtrusts.org/en/trend/archive/winter-2021/on-the-intersection-of-science-and-religion).

Key Moments in The History of Astronomy and Religion

For millennia the study of the heavens has been closely tied to religious practice, as human beings have sought answers to two related questions: *What are the stars? and What do they mean?* Here are some key episodes in the history of that search.

After reviewing this timeline, ask: What does this timeline suggest to you about the relationship throughout history of science and religion? What recurring themes or patterns did you notice? What surprised you? Which episodes are you curious to learn more about?





Birth of Al-Battani (858–929), best known for his near-accurate calculation of the length of the solar year. Al-Battani was a Muslim who grew up among a community of Sabians, who practiced an astral religion. Like many Muslims of the Islamic Golden Age, Al-Battani was inspired by the many Quranic verses that celebrate the natural world and emphasize the importance of its observation and study.

“TRAVEL THROUGHOUT THE LAND AND SEE HOW HE ORIGINATED THE CREATION.” – THE QURAN

Nicolaus Copernicus (1473-1543) publishes his revolutionary theory that Earth orbits annually around the Sun. Copernicus was a Church canon (who may have taken priestly vows) who believed in the compatibility of science and Christian faith. While the Roman Catholic Church initially supports Copernicus, it later joins a wave of Protestant opposition to his heliocentric theory.

Brahe’s student Johannes Kepler (1571-1630) publishes his theory of the elliptical orbit of planets.

“FOR A LONG TIME I WANTED TO BE A THEOLOGIAN. NOW, HOWEVER, BEHOLD HOW THROUGH MY EFFORT GOD IS BEING CELEBRATED THROUGH ASTRONOMY.” – JOHANNES KEPLER



510

The Indian astronomer *Aryabhata* (476–550) publishes his *Aryabhatiya* which includes accurate calculations of the length of the day and year. He proposes that the moon and stars shine due to reflected sunlight, and that planetary orbits are elliptical rather than circular. The *Aryabhatiya* begins with a tribute to Brahman, the eternal Ultimate Reality in Hinduism.

858

1054

The supernova explosion that formed the Crab Nebula is reported by astronomers in China. Native-American pictographs in Chaco Canyon, New Mexico likely record the same phenomenon.

1543



1572

A brilliant supernova observed by the Lutheran astronomer Tycho Brahe (1546-1601), provides evidence that the heavens are changeable, upending Aristotle’s long-held view that the heavens are static and unchanging.

1609

“THOSE WHO STUDY THE STARS HAVE GOD FOR A TEACHER.” – TYCHO BRAHE.

1633

Galileo Galilei (1564-1642) is found by the Inquisition to be “vehemently suspect of heresy,” because his heliocentric theory upends the Aristotelian view of the universe and is believed by some to contradict the teachings of the Bible and the Church. He is sentenced to house arrest.

“THE BIBLE SHOWS THE WAY TO GO TO HEAVEN, NOT THE WAY THE HEAVENS GO.” – GALILEO GALILEI

1687 • Isaac Newton (1643-1727) publishes his Principia, establishing the theory of gravitation and laws of motion. The Principia allows astronomers to understand the forces acting between the sun, planets, and their moons. Newton believed that the grandeur of the natural world was proof of God's existence.

1847 • American astronomer Maria Mitchell (1818-1889) discovers what will become known as Miss Mitchell's Comet, for which she receives an award from the King of Denmark. Famous worldwide for being America's first professional woman astronomer, Mitchell was a Unitarian who embraced the compatibility of science and religion.

1905 • Albert Einstein (1879-1955) publishes four papers that forever change the way people view space, time, mass, and energy. These insights include his theory of special relativity which contributes to the discovery of space-time. A Jew who resisted religious labels, Einstein rejected the idea of a personal God but embraced a spirituality grounded in awe, wonder and mystery.

1927 • The Belgian Catholic priest Georges Lemaître first theorizes that the recession of galaxies can be explained by an expanding universe, which led to the development of the Big Bang model.

1969 • US astronauts Neil Armstrong and Buzz Aldrin are the first people to walk on the lunar surface. Shortly afterward, Aldrin, a Presbyterian, commemorates the occasion by taking communion in space.

“SCIENTIFIC INVESTIGATIONS, PUSHED ON AND ON, WILL REVEAL NEW WAYS IN WHICH GOD WORKS, AND BRING US DEEPER REVELATIONS OF THE WHOLLY UNKNOWN.” - MARIA MITCHELL

“THE BIBLE KNOWS NOTHING ABOUT PHYSICS, AND PHYSICS KNOWS NOTHING ABOUT GOD.” - FR. GEORGES LEMAÎTRE

“GRAVITY EXPLAINS THE MOTIONS OF THE PLANETS, BUT IT CANNOT EXPLAIN WHO SETS THE PLANETS IN MOTION.” - ISAAC NEWTON



05 Resources for Further Exploration

Here is a brief list of resources to help you further explore topics raised by LUMINOUS.

TO READ MORE ABOUT THE UNIVERSE:

- *Astrophysics for People in a Hurry*
by Neil deGrasse Tyson
A brief and engaging tour of the Universe from one of America's best known astronomers.
- *National Geographic Backyard Guide to the Night Sky*
by Andrew Fazekas
Packed with color photos, this book uses stargazing as a frame for introducing the Universe.

TO LEARN FROM SCIENTISTS AND THINKERS WHO INTEGRATE THE WISDOM OF SCIENCE AND RELIGION:

- *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*
by Robin Wall Kimmerer
An environmental scientist and enrolled member of the Citizen Potawatomi Nation, Kimmerer explores the intersections of science and Indigenous wisdom.
- *Saving Us: A Climate Scientist's Case for Hope and Healing in a Divided World*
Katharine Hayhoe
An evangelical Christian and climate scientist, Hayhoe seeks common ground on issues that commonly divide us, including science and religion.
- *The Language of God: A Scientist Presents Evidence for Belief*
by Francis Collins
The geneticist and former NIH director relates his journey from atheism to Christian faith, and shows how science is not only compatible with faith, but can enrich it.
- *The Great Partnership: Science, Religion, and the Search for Meaning*
Jonathan Sacks
Rabbi Jonathan Sacks argues that religion and science are complementary pursuits that, taken together, offer a fully-dimensional understanding of our world.

- ***The Fool and the Heretic: How Two Scientists Moved beyond Labels to a Christian Dialogue about Creation and Evolution***
by Todd Charles Wood, Darrel R. Falk,
foreword by Rob Barrett
Two respected Christian scientists who hold opposing views on the origins of the world recount their journey of mutual understanding and respect.

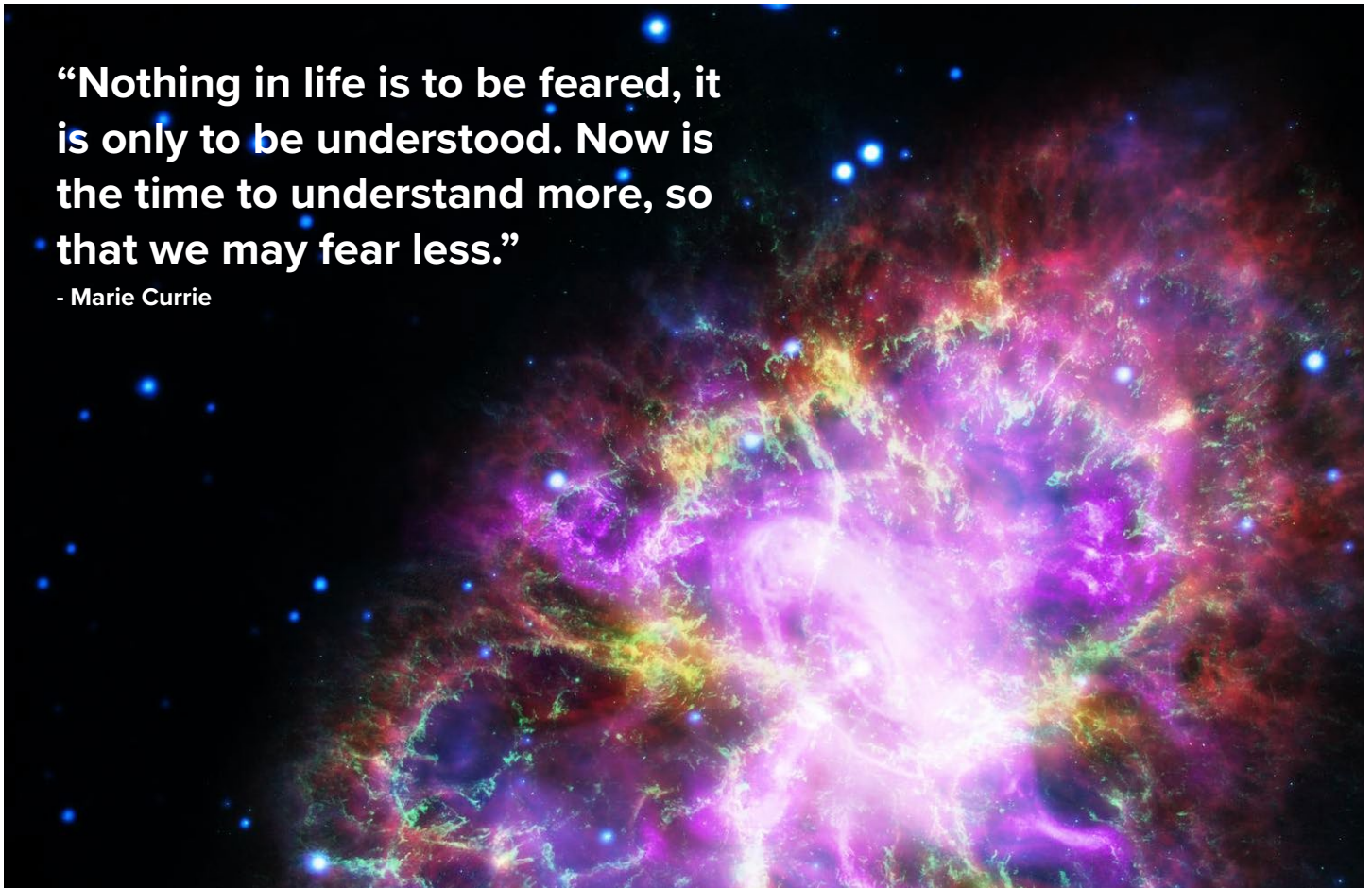
TO DISCOVER MORE COMPELLING RESOURCES ON THE INTERSECTION OF SCIENCE AND FAITH:

- **THE JOHN TEMPLETON FOUNDATION**
The John Templeton Foundation “funds research and catalyzes conversations that inspire people with awe and wonder.”
- **THE BIOLOGOS FOUNDATION**
The BioLogos Foundation “explores God’s Word and God’s World to inspire authentic faith for today. Our vision is faith and science working hand in hand.”
- **ON BEING**
Krista Tippett’s popular On Being podcast includes many episodes that explore science, faith and the intersection of the two.

- **THE VATICAN OBSERVATORY**
The Vatican Observatory is one of the oldest active astronomical observatories in the world. Compare the story told in the short film, *The Pope’s Astronomer*, with LUMINOUS.
- **AAAS DIALOGUE ON SCIENCE, ETHICS & RELIGION**
The American Association for the Advancement of Science (AAAS) is the world’s largest multidisciplinary scientific society and publisher of the scientific journal *Science*. The Dialogue on Science, Ethics & Religion program seeks to facilitate communication between scientific and religious communities.
- **INTERVARSITY CHRISTIAN FELLOWSHIP**
InterVarsity Christian Fellowship offers resources on the intersection of Science and Faith here:
GFM.INTERVARSITY.ORG/RESOURCES/RESOURCES-SCIENCE-AND-RELIGION.

“Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.”

- Marie Currie





06 Credits and Acknowledgments

For more information about LUMINOUS and to download educational materials, visit LUMINOUS-FILM.COM

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**“Science investigates; religion interprets.
Science gives man knowledge, which is power;
religion gives man wisdom, which is control.
Science deals mainly with facts; religion deals
mainly with values. The two are not rivals.”**

- Martin Luther King, Jr