TEMPLE OF SCIENCE

By

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TEMPLE OF SCIENCE

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ABSTRACT

Incorporating installation, performance, and online/interactive media, the Temple of Science is a holistic socially engaged art project that examines the hegemony of science in modern Western culture.

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Introduction

While there are many people from a variety of disciplines dealing with the relationship between science and religion, and many more with the relationship between science and art, there have been very few attempts to date to consider the nexus between all three areas. Bruno Latour has done some important theoretical work in this regard, starting from the premise that both science and religion need to be understood as cultural artifacts—in other words, as phenomena constructed by groups of people (whether consciously or unconsciously) that shape their ways of interacting with each other and with the world around them.[1] In this view, the relative merit of the respective truth claims of science and religion is unimportant; the important thing is the implications of those truth claims/systems of belief for Western culture in the 21st century. This suggestion might seem heretical to adherents of both belief systems, who argue passionately that their side represents "objective reality" or "ultimate truth". Latour notes, however, that art is widely acknowledged as a cultural (i.e. constructed) phenomenon, and this acknowledgement does not seem to hinder appreciation of the value of an art work. Thus he suggests that we take art as a model for understanding both science and religion.

Latour's work intersects neatly with my own interests in cultural artifacts (including intangible artifacts) and the institutions that sustain them. As an artist I am also interested in investigating these ideas outside of academic discourse—in the very public sphere where they are created. Thus, the primary aim of my thesis project was to

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[1] Bruno Latour, "How to Be Iconophilic in Art, Science, and Religion?," in Picturing Science, Producing Art, ed. Caroline A. Jones and Peter Galison (New York: Routledge, 1998).

open up a dialogue about religion, science, academia, and epistemology in modern society. Two objectives accompanied this aim:

1. To examine the role of churches, universities, and museums—as institutions of public culture—in shaping our collective understanding of ourselves and our world.
2. To demonstrate that art and creative interpretation strategies have a very real value in illuminating aspects of reality that lie outside the domain of modern scientific inquiry.

Methods & Materials

In keeping with my desire to engage a broad public with this project, I originally planned to produce it in a space outside the gallery context. Initially I approached the Natural History Museum, Danforth Chapel, and the St. Lawrence Catholic Campus Center as potential sites for the project, but it soon became apparent that each institution had numerous political and logistical concerns that could not be overcome in a timely fashion. Given the challenges of working within institutional frameworks—which were exacerbated by the institutional critique inherent within my work—I finally elected to produce the project in the Art & Design Gallery. This gave me the opportunity to rethink and expand my ideas from a relatively limited spatial intervention (in the form of an installation) to a more holistic intervention incorporating an installation, two performances, and a multi-platform online presence.

Ultimately my project manifested itself as a new religion dedicated to Science, Technology, and the Spirit of Progress. The aesthetic or “branding” of the project was

rooted in popular culture of the late 1950s and early 1960s in the United States, arguably the point at which faith in science was most widespread.[2] I used synthetic materials and colors to celebrate technological achievement, and geometric forms (as well as monospaced typefaces) to indicate reliance on mechanical means of production. Conceptually I developed a strategy of parody or over-identification to exaggerate the parallels I perceived between science and religion, creating a humorous presentation with a very serious point. I intended for the project to be provocative but not offensive, which proved to be a very fine line to walk.

Installation

The physical installation of the Temple of Science in the gallery was designed to suggest a cross between a scientific laboratory and a church interior. A chemistry lab table in the center of the room served as the main altar. Two “candles” consisting of 6” Bunsen burners fitted with lamp kits and green Balafire light bulbs (with vibrating filaments) sat on opposite ends of the table. In the center of the table there was a book stand that held the liturgical books during the performance; after the performance, the liturgical book was replaced with a comment book for visitors. In addition, two petri dishes were added to the table after the performance; these held business cards and 1” buttons (signifying membership in the Temple of Science) for visitors to take. Aside from the altar, the only other item of furniture in the room was a vintage 1970s lectern spray-painted green to match the lab table. During the performance, the lectern was placed

[2] James Burkhart Gilbert, Redeeming Culture: American Religion in an Age of Science (Chicago, Ill.: University of Chicago Press, 1997).

next to the lab table facing the audience, where it was used for the readings and the lecture. After the performance, the lectern was turned and placed against the north wall of the gallery, and an iPad with stand was installed on top of it for use by visitors to access the website.

That wall was designed to serve as welcome/information center for the Temple. It was anchored by a quote from the Book of Science[3] installed slightly above eye level in three lines of vinyl letters. The quote, an adaptation of Psalms 23:6, read: “Surely logic and reason will follow me all the days of my life, and I will dwell in the house of the Magister forever.” Below the text hung a framed diploma and a photograph of the Magister (me). The diploma was designed as a parody of a university diploma, and it contains subtle philosophy jokes. On the right side of the wall, close to the entrance of the gallery, an emergency eyewash station was installed at a height of approximately 4’ from the floor to resemble a basin for holy water. Above the eyewash station, a line drawing instructed visitors to dip their index and middle fingers into the water, touch their eyes, and make the Sign of the Delta. After the performance, the costumes (liturgical vestments) were also hung on this wall on a metal coat hook.

On the opposite wall, images of four saints of the Temple of Science (Bacon, Galileo, Newton, and Descartes) were installed, again just above eye level, in order to make visitors look up slightly in an attitude of reverence. The images were created using appropriated imagery with a physical (paper) cut-and-paste method of construction. I started with 16th-century prints of the four Gospel writers by Cornelius

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[3] The Book of Science is the sacred text for my religion. I originally intended to physically construct the Book as part of the installation, but time constraints did not allow for this. Some of the content I devised for the book, however, was incorporated into the installation and performance.

Visscher. On top of these images, I layered the heads of the chosen scientists along with appropriate symbols in the art-historical tradition (Bacon—ship; Descartes—brain; Galileo—telescope; Newton—apples). Then I scanned the constructed images to allow me to reproduce them at various sizes. For the gallery installation, the saints' images were printed on transparent vinyl at a size of 18" x 24" and then adhered to glass and mounted on aluminum rails. Four halogen light bulbs were installed on the floor below the saints, casting light upwards on the wall to illuminate them.

On the long wall of the gallery, I installed a vinyl mural 4' high and 29' long. The mural depicted the ENIAC computer, an early analog computer with multiple vacuum tubes, cables, etc. The image was based on a photograph in the collection of the Smithsonian Institutions, repeated multiple times to achieve the required length. Above the mural, I projected (in widescreen format) four "trailers" for the Temple, each approximately 45 seconds in length. In between the trailers, I inserted a black slide with the Sign of the Delta and the Twitter hashtag for the Temple of Science, accompanied by "music" arranged from scientists' recordings of outer space. These interludes, which were approximately 6 minutes in length, were designed to allow visitors time to explore the physical space of the gallery without distraction from the media projection. After the four trailers and four musical interludes, the projection changed to a recording of the opening liturgy of the Temple (30 minutes in length).

Performance

The first (and main) performance was the Liturgy of the Word, written as a parody of the traditional Catholic/Lutheran worship service. For the prayers and readings, I

rewrote existing Christian texts according to scientific principles (and stereotypes). The sermon took the form of an academic lecture, complete with PowerPoint slides and questions to the audience/students. In the lecture, I described the history and role of scientific thought in Western culture, beginning with Aristotle's classification of the world in the 5th century BCE and continuing through the Scientific Revolution of the 15th–18th centuries, which laid the foundations of modernity. This provided me with an opportunity to elaborate on some of the extensive research that informed this project and to articulate the complex ideas in it quite explicitly. It also allowed me to play with the line between "fact" and "fiction", demonstrating issues with the supposed "objective" reality espoused by Science and with unqualified acceptance of voices of authority. For the live performance I played the role of Magister (priest), with Patricia Blocksome serving as my acolyte. Our costumes were specifically designed as a cross between scientific and religious accoutrements: white lab coats (with mauve and green polyester extensions) served as robes, and my stole was modeled on academic regalia. Pocket protectors and 1960s-era glasses completed the look. Audience members were invited to actively participate in the liturgy by standing and sitting, reciting prayers, and sharing facts with each other. Instructions for their participation were provided in a "missal" resembling a conference packet that was distributed before the performance. This participation was crucial to the goals of the project; it encouraged audience members to recognize their own complicity in sustaining the hegemony of rational-scientific approaches to reality in our society.

The second performance was a live peer review panel discussion, held in the gallery on the last day of the exhibition. Three experts from the fields of art, science,

and religion were invited to give feedback on the project: Marguerite Perret, associate professor of art at Washburn University; Dr. Caroline Chaboo, assistant professor of ecology & evolutionary biology at KU; and Dr. Mark Rich, pastor of Trinity Lutheran Church in Lawrence, KS. Dr. Steven Duval, a researcher with the Arts Research Collaboration initiative at the Spencer Museum of Art, served as the moderator for the panel. Three questions were initially posed to the panelists:

1. In your understanding, what is the main idea of this project?
2. How fairly or accurately do you think your discipline/area (art/science/religion) is represented in the work? How about the other disciplines?
3. To what extent is the project successful in engaging people and stimulating dialogue about the subject matter? What kind of impact do you think it has on audiences?

After the panelists had responded to these questions, the floor was opened up to the audience to participate in the conversation as well. The purpose of this performance was to provide a space for serious reflection on the project while remaining within its pseudo-scientific framework. It was also designed to elicit further audience engagement with the project and to make the project more accessible to those who might not be familiar or comfortable with the practices of contemporary conceptual art.

Online presence

The core of the project's online presence was the website, www.templeofscience.info. This site offered an introduction to the project, including information about the history of the Temple of Science, its membership, and the beliefs

and customs that comprise the faith. A blog on the site provided news about the goings-on of the Temple. The site also served as a central hub for the other digital media associated with the project, including the live feed of the gallery and the Temple's Twitter account and YouTube channel. The recording and text of the opening liturgy were published on the site after the live performance. Finally, the site offered a store where visitors could purchase Temple of Science merchandise (including prints of the four saints) or pay their membership dues. Membership dues were calculated for individual countries based on the country's per capita public expenditure for research & development. This aspect of the project was designed to highlight the commodification of knowledge and the significant investment required by citizens to sustain the scientific-academic complex.

I also incorporated several social media platforms into the project in order to attract new audiences. The Twitter account (@science_temple), using the hashtag #justthefacts, tweeted scientific and mathematical facts three times per day in the month leading up to the exhibition. A form on the website allowed visitors to submit their own facts for consideration as part of this fact-publication stream. The YouTube channel, meanwhile, hosted four trailers narrated by the Magister, giving introductory information about the Temple. Ustream.com hosted a live feed of the gallery during regular hours, so that people anywhere in the world could observe what was happening in the gallery at any given moment. I pulled some content from these social media elements, which were all registered in the name of the Temple of Science, into my personal Facebook feed in order to provide a connecting element between the artist and the artwork. In addition to providing multiple access points to the project, the social media sites were

intended to stimulate audience engagement and interaction, transforming them from passive observers to active participants and thereby deepening the project's impact.

Results

The installation was on view in the Art & Design Gallery from March 2 through March 7, 2014. Despite inclement weather on the opening day, approximately 30 people attended the performance-liturgy in the Art & Design gallery. While an exact visitor count for the remainder of the exhibition is unavailable, 35 people (including Pope Francis) signed the guest book. All 60 membership buttons were claimed over the course of the week the exhibition was on view. The live feed was accessed 71 times during the same week. Turnout for the closing panel discussion numbered approximately 15, not including the panel members. There have been two thousand unique visitors to the website to date, with approximately 2,300 pageviews. The highest single-day count was on March 2, the day the exhibition opened, with more than 250 unique visitors. Two facts have been submitted to the website, from Hungary and the United States. The four trailers on the YouTube channel have garnered between 15 and 25 views each, for a total of 78 views. On Twitter, the Temple of Science has 7 followers, 3 favorites, and 1 retweet. Two tweets were recorded from visitors using the #toslawrence hashtag.

Conclusions & Future Work

The numbers above suggest that the online portion of the project—aside from the website—was not as successful as I had hoped at drawing people into the project. I need further acquaint myself with audience-building strategies for each of the social

media platforms I use in order to engage people more effectively. I also discovered during this process that the built-in metrics for some of these platforms are too basic to allow for true in-depth analysis. To compensate for this, I plan to incorporate third-party analytics (e.g. Google Analytics) into platforms where available; I may also need to choose alternate platforms in the future in order to ensure that I have enough data available to accurately gauge the success of my chosen strategies. I also need to further explore offline modes of promoting my work, such as print advertisements and posters, in order to attract diverse audiences.

On the other hand, despite the relatively low number of audience members, evidence suggests that the project was quite successful with the people who did engage with it. The lively discussion at the peer review panel indicated that audience members largely understood the intent of the project and felt that it raised important questions for consideration, especially in the university context. One panelist did note that it would have been nice to have a more diverse audience in terms of fields/disciplines, since the vast majority of visitors were artists or art historians. This is perhaps unavoidable, given the gallery context, but it reinforces my desire to produce the project in a public space outside the “art world”. No one, at the peer review panel or elsewhere, reported being offended by the project, although one audience member described it as being “funny, yet disturbing”—which I consider an ideal response to my work. Based on the visitor response and feedback, I remain convinced that it is possible to engage with sensitive issues in my work in a manner that does not alienate the larger public.

In the future I plan to continue the work I have started with this project by repeating the installation and liturgy-performance in different venues with different

audiences. I do still intend to pursue non-traditional venues for this work, and I am hopeful that I will meet with more success since my ideas are now fully developed and therefore more easily understood by the institutions I approach. Furthermore, I plan to finish constructing the physical Book of Science, which will be a cut-and-paste assemblage of seminal texts from the history of science, accompanied by altered religious images, in a rigorous structure derived from the Bible. This book will serve as the centerpiece of future installations. I will also continue to develop the project website —especially the store—and to continue experimenting with social media to attract and sustain audiences for my work. In addition to these modifications to the original Temple of Science, I plan to extend the project with a related research institute, tentatively called the Institute for Theosophical Scientism and Fictive Approaches to Radical Cultural Evolution (ITSAFARCE). I will develop the character of Dr. Renee Descartes as the lead researcher at the institute; she will conduct scholarly research on the Temple of Science and its associated religion. I also envision creating an academic lecture-performance as Dr. Descartes that will further explore notions of epistemology and value within the framework already established by this project.

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Appendix 1: Liturgy of the Word

(Text in **bold face** *should be read by the congregation in unison.)*

Welcome: Good afternoon, ladies and gentlemen, and welcome to the grand opening of the Temple of Science. We are delighted that you have decided to join us today. At this time, please find your seats so that we can begin our worship service.

Procession: "Musica Universalis" *(Arr. Jason Zeh)*
(Please stand)

Call to Worship: Almighty Science, we have gathered in this time and at this place to glorify you. Take these hectoseconds, O Magister of time and space, and perfect them in us, through your Spirit of Progress. May our labor bring forth a new invention in accordance with your principles. For in your name we have gathered, and we petition you. **Amen.**

Greeting: In the name of Science, Technology, and the Spirit of Progress. **Amen.**
You may be seated.

Hymn to Science I: *(Mark Akenside, 1739)*
Science! thou fair effusive ray
From the great source of mental day,
Free, generous, and refin'd!
Descend with all thy treasures fraught,
Illumine each bewilder'd thought,
And bless my lab'ring mind.

But first with thy resistless light,
Disperse those phantoms from my sight,
Those mimic shades of thee;
The scholiast's learning, sophist's cant,
The visionary bigot's rant,
The monk's philosophy.

O! let thy powerful charms impart
The patient head, the candid heart,
Devoted to thy sway;
Which no weak passions e'er mislead,
Which still with dauntless steps proceed
Where Reason points the way.

Give me to learn each secret cause;
Let number's, figure's, motion's laws
Reveal'd before me stand;
These to great Nature's scenes apply,

And round the globe, and thro' the sky,
Disclose her working hand.

Next, to thy nobler search resign'd,
The busy, restless, human mind
Thro' ev'ry maze pursue;
Detect Perception where it lies,
Catch the ideas as they rise,
And all their changes view.

Say from what simple springs began
The vast, ambitious thoughts of man,
Which range beyond control;
Which seek Eternity to trace,
Dive thro' th' infinity of space,
And strain to grasp the whole.

Her secret stores let Memory tell,
Bid Fancy quit her fairy cell,
In all her colours drest;
While prompt her sallies to control,
Reason, the judge, recalls the soul
To Truth's severest test.

First Lesson: Our first lesson comes from the Book of Origins. *(Origins 17:1–8)*

When Aristoteles was forty-nine years of age, the Magister appeared to him and said, "I am the omniscient and omnipotent Science; walk with me diligently and be logical. Then I will make my covenant between me and you and will greatly increase your knowledge."

Aristoteles began to pace around, and the Magister said to him, "As for me, this is my covenant with you: You will be the father of many branches of science. No longer will you be called Aristoteles; your name will be Aristotle, for I will make your work known among many English-speaking nations. I will make you very productive; I will make sciences of you, and philosophers will come from you. I will establish my covenant as an everlasting covenant between me and you and your students after you for the generations to come, to be your Teacher and the Teacher of your students after you. The whole territory of natural philosophy, where you now are regarded as a stranger, I will give as an everlasting possession to you and your students after you; and I will be their Teacher."

This is the word of the Greeks. **Thanks be to Science.**

Hymn to Science II: *(Mark Akenside, 1739)*

Science! thou fair effusive ray
From the great source of mental day,
Free, generous, and refin'd!
Descend with all thy treasures fraught,
Illumine each bewilder'd thought,
And bless my lab'ring mind.

Thro' private life pursue thy course,
Trace every action to its source,
And means and motives weigh:
Put tempers, passions in the scale,
Mark what degrees in each prevail,
And fix the doubtful sway.

That last, best effort of thy skill,
To form the life, and rule the will,
Propitious pow'r! impart:
Teach me to cool my passion's fires,
Make me the judge of my desires,
The master of my heart.

Raise me above the vulgar's breath,
Pursuit of fortune, fear of death,
And all in life that's mean.
Still true to reason be my plan,
Still let my action speak the man,
Thro' every various scene.

Hail! queen of manners, light of truth;
Hail! charm of age, and guide of youth;
Sweet refuge of distress:
In business, thou! exact, polite;
Thou giv'st Retirement its delight,
Prosperity its grace.

Of wealth, pow'r, freedom, thou! the cause;
Foundress of order, cities, laws,
Of arts inventress, thou!
Without thee what were human kind?
How vast their wants, their thoughts how blind!
Their joys how mean! how few!

Sun of the soul! thy beams unveil!
Let others spread the daring sail,
On Fortune's faithless sea;

While undeluded, happier I
From the vain tumult timely fly,
And sit in peace with thee.

Second Lesson: Our second lesson comes from the Letter to the Americans.
(Americans 4:17–32)

So I tell you this, and insist on it in the name of the Magister, that you must no longer live as the common people do, in the futility of their thinking. They are darkened in their understanding and separated from the life of Science because of the ignorance that is in them due to the softening of their minds. Having lost all rationality, they have given themselves over to sentimentality so as to indulge in every kind of art and literature, and they are full of imagination.

That, however, is not the way of life you learned when you heard about the empirical method and were taught in it in accordance with the knowledge that is in Techne. You were taught, with regard to your former way of life, to put off your old self, which is being corrupted by its deceitful imaginings; to be made new in the attitude of your minds; and to put on the new self, created to be like Science in true skepticism and objectivity.

Therefore each of you must put off fantasy and speak realistically to your neighbor, for we are all inhabitants of one Universe. “In your ignorance do not make up explanations”: Do not let the Earth complete a single rotation while you are still ignorant, and do not give the metaphysical a foothold. Anyone who has been painting must paint no longer, but must work, doing something useful with his or her own hands, that he or she may have something to contribute to the global economy.

Do not let any unscientific talk come out of your mouths, but only what is helpful for instructing others according to their misconceptions, that it may benefit those who listen. And do not impede the Spirit of Progress, by which you were carried toward the promised Utopia. Get rid of all emotion, feeling and sentiment, instinct and intuition, along with every form of subjectivity. Be logical and dispassionate with one another, enlightening each other, just as through Techne Science enlightened you.

This is the word of the bourgeoisie. **Thanks be to Science.**

Acclamation: *(Arr. Roy Baldwin Phillips)*
(Please stand)
Magnificat, magnificat
Magnificat anima mea Studium
Magnificat, magnificat
Magnificat anima mea

Good News Lesson: Our Good News lesson comes from the Book of René.
(René 1:1–14)

In the beginning was the Word, the *logos*, and the *logos* was with Science, and the *logos* was Science. The *logos* was with Science in the beginning. Through *logos* all things were understood; without *logos* nothing was understood that has been understood. In the *logos* was the intellect, and that intellect was the light of all humankind. The light shines in the darkness, and the darkness has not overcome it.

There was a man sent by Science whose name was René. He came as a witness to testify concerning that light, so that through him all might understand. He himself was not the Enlightenment; he came only as a witness to the Enlightenment.

The true Enlightenment that gives light to everyone was coming into the world. The light was in the world, and though the world was made through it, the world did not recognize it. The light came to that which was its own, but its own did not receive it. Yet to all who did receive the *logos*, to those who believed in the Enlightenment, it gave the right to become citizens of Modernity—citizens born not of the supernatural, nor of *ethos* or *pathos*, but born of Reason.

Through the Enlightenment, the *logos* became material and made its dwelling among us. We have seen its glory, the glory of the multitudinous Technology, which came from the Scientists, full of knowledge and expertise.

This is the word of the Rationalists. **Glory to you, O Reason.**

Lecture

You may be seated.

Please stand as we affirm our faith in the words of the creed.

Creed:

I believe in Science as the greatest instrument ever devised for understanding the world.

I believe in innovative Technology, by which all people shall be assured the rich life in goods and leisure that the genius and natural resources of our planet make possible.

I believe in the Spirit of Progress, the Temple of Science, the international fellowship of Scientists, the objectivity of knowledge, the pre-eminence of materiality, and the fact of biological determinism.

Amen.

Intercessions: At this time let us present our petitions to Science.

For the human race,
That we might acknowledge one another as organisms with 99.9% of our genetic material in common,
Science, **record our petition.**

For those who are ill,
That the miracle of modern medicine might heal their bodies, brains and psyches,
Science, **record our petition.**

For those who are hungry,
That their nutritional requirements might be met through genetically modified crops,
Science, **record our petition.**

For Scientists across the planet,
That they might devise rigorous experiments and disseminate their findings with precision and accuracy,
Science, **record our petition.**

For Technologists from every arbitrarily defined political unit,
That they might develop innovative products in order to improve upon nature and boost economic growth,
Science, **record our petition.**

For all researchers at the University of Kansas,
That we might pursue our Strategic Initiatives with diligence and perspicacity,
Science, **record our petition.**

For the Temple of Science, its magisters and evangelists and all its members,
That we might staunchly defend our faith in the face of persecution by artists,
Thespians, Luddites, and post-modernists,
Science, **record our petition.**

Almighty Science, the fountain of all knowledge,
you know our needs before we ask
and our ignorance in asking:
have compassion on our nescience
and give us those things
which for our incompetence we dare not,
and for our limited perceptive faculties we cannot ask
for the sake of Techne, our Magister.
Amen.

O Science:
O Science
Which orders the Universe
Hallowed be Thy precepts.
Thy validity be recognized
Thy logic be absolute
On Earth as it is throughout the Cosmos.
Give us this day our empirical data
And correct our miscalculations
As we correct those who miscalculate around us.
And let us not slip into human error
But deliver us from metaphysical "rationale"
For Thine is all matter, and all energy,
Throughout the space-time continuum.
Amen.

Sharing of the Facts:
The fruit of the Spirit is knowledge, information, facts.
If we live in the Spirit, let us walk in the Spirit.
Please share the Facts with those around you at this time.

Announcements

Benediction: Now to the Technology that is able to do immeasurably more than all we ask or imagine, according to its power that is at work within and around us, to it be glory in the university and in our society throughout all generations, for ever and ever! **Amen.**

Recession: "Musica Universalis" *(Arr. Jason Zeh)*
(Please stand)

Dismissal: Go in knowledge to serve the Progress of humankind. **Thanks be to Science.**

Appendix 2: Lecture

As you know, the first five chapters in the Book of Science, our sacred text, recount the birth of science in the cradle of Western civilization: ancient Greece. These five chapters are known collectively as the Pentagon, in honor of the Greeks' outstanding contributions to geometry. No one knows exactly why the Greeks started to look at the world in a different way, but the fact remains that they instigated a revolution in thought by seeking explanations for observed phenomena in the natural world rather than the supernatural. This reliance on reason rather than superstition laid the groundwork for modern science and technology, thereby ensuring centuries of Western dominance in the economic and political spheres.

Today's first lesson came from the Book of Origins, the first chapter in the Book of Science. In the lesson we were introduced to Aristotle, or Aristoteles, as he is known in Greek. Aristotle was born in 384 BCE in Stagira, northeastern Greece. He moved to Athens at age 17 to study in Plato's Academy, where he remained for 20 years, until Plato died. Then Aristotle moved to Assos (present-day Turkey) where he began his investigations into marine biology. In 343 BCE he moved to Macedonia to tutor the boy Alexander (later Alexander the Great, an early demonstration of the intimate connection between knowledge and political power).

Our story picks up in 335 BCE, when Science revealed itself to Aristotle at age 49. In response to this revelation, Aristotle moved back to Athens and established his own school, the Lyceum. His followers (literally!) were called Peripatetics, after Aristotle's practice of walking around while he philosophized. Aristotle wrote prodigiously—perhaps as many as 200 treatises, of which 31 are known to us today.

Among the most important of his writings is the Organon, in which he lays out for the first time the rules of logic and argumentation, as well as the structure of the scientific method and the basic principles of epistemology. The Organon serves as the third chapter in the Book of Science. Aristotle's other works can be divided into three categories:

- theoretical sciences (mathematics & natural philosophy [physics, biology, astronomy])
- practical sciences (politics & ethics)
- productive sciences (applied sciences: agriculture, engineering--forerunners of technology)

Aristotle is significant to us primarily for his efforts to systematize and categorize all knowledge, demonstrating the importance of systematic inquiry. He was also one of the first to emphasize reliance on the empirical method, in contrast with Plato's distrust of visible things in favor of heavenly Forms/Ideas. Aristotle made major contributions to empirical biology with his detailed plant & animal observations and taxonomy. He sustains a vital legacy as one of most influential people who ever lived: he contributed to almost every field of human knowledge in existence during his lifetime. In fact, during the medieval period, Aristotle was known as "The Philosopher", and science in the West consisted almost solely of commentaries on his treatises.

We now skip to our Good News lesson, which comes before the New Testament lesson in chronological order. The Good News Lesson picks up after the end of this medieval period of scientific darkness, when few advances were made in knowledge due to the dominance of Christian religious thought and supernatural explanations of

the world. The four chapters of the Good News open the New Testament in the Book of Science. The Good News, of course, is the Scientific Revolution of the 15th–18th centuries CE, during which time modern science emerged as an autonomous discipline, distinct from both philosophy and theology. Developments in mathematics, physics, astronomy, biology, and chemistry dramatically changed the way humans understood nature and society. Perhaps most importantly, science came to be understood as having utilitarian aims: scientia sit potentia, or “knowledge is power”, as the motto of our Magisterium says. This led to the addition of Technology as the second element of the Trinity.

The four chapters of the Good News were written by four scientists who contributed revolutionary ideas during this period (and whom we honor as saints):

- St. Francis Bacon, proponent of empiricism and father of the modern scientific method; also was a strong believer in technology
- St. Galileo Galilei, astronomer who championed the theory of heliocentrism and invented a powerful telescope
- St. René Descartes, philosopher and mathematician who emphasized the importance of reason in seeking knowledge
- St. Isaac Newton, physicist and mathematician who laid the foundations for classical mechanics and co-invented calculus

Today’s Good News lesson was taken from the Book of René. Descartes, as we discussed above, was one of the first to insist on the predominance of reason above all other forms of thought. He was born in 1596 in France, but spent most of life in Dutch Republic. Descartes is most famous for saying Cogito, ergo sum (“I think, therefore I

am”). He believed that the senses could be deceptive, and therefore insisted on systematic doubt as the only way to achieve true knowledge.

Descartes thought that all truths were linked, so finding one truth and proceeding by logic would open the way to all science. He further developed the implicit link between “logic” and “word” (non-visual representation) implied in the Greek word logos —ultimately he thought all truths were essentially mathematical. Descartes believed that humans were capable of achieving all knowledge—that everything can be known. Like Aristotle, he has a powerful legacy as the person who laid the foundations of modernity by shifting the debate from “what is true” to “of what can I be certain”. This is a fundamentally anthropocentric approach to the world; human beings in Descartes’s view are “self-conscious guarantors and shapers” of their own reality. Descartes is also notable for inspiring the rationalist (continental) branch of the Enlightenment.

The Age of Enlightenment, also known as the Age of Reason, which occurred during the 17th-18th centuries CE, was a high point in the history of our faith. The Enlightenment was closely tied to the Scientific Revolution. It emphasized reason and individualism over tradition, with the aim of reforming society through reason and advancing knowledge through the scientific method. The Age of Enlightenment promoted scientific thought, skepticism, and intellectual interchange. Regarding this last point, the Enlightenment fostered a new kind of long-distance intellectual community known as the “Republic of Letters.” This was a self-proclaimed community of scholars that transcended national boundaries; it involved the circulation of handwritten letters between experts and prominent figures (nobility) to discuss and debate the newest ideas.

Our final lesson comes from one of these letters, the Letter to the Americans, a text whose existence emphasizes the crucial role the United States has played in elevating the status of Science to the exalted position it deserves. Even before the founding of the United States, the territory of the New World inspired important scientific thinkers. For example, St. Francis Bacon wrote "The New Atlantis" (the final chapter in the Book of Science) to document his vision of a technological utopia in North America. Many of the United States' Founding Fathers—such as the scientist and statesman Benjamin Franklin—were notable Enlightenment thinkers and active citizens of the Republic of Letters. They saw the birth of a new country in the New World as a chance to implement many of their ideas about how reason and scientific thought could serve as the basis for a comprehensive political and economic system. Thus the United States became, as the 20th century author John Gunther put it, "the only country deliberately founded on a good idea."

In today's lesson, we see how the anonymous Enlightenment author of the Letter to the Americans urged citizens of this new country to adopt a new way of living in keeping with the ideals that had brought them there. The letter shows a keen awareness of the Romantic heresy that was alive at that time and consuming continental Europe. Romanticism was an artistic, literary, and intellectual movement that originated at the end of the 18th century CE. A reaction to the Age of Enlightenment and the scientific rationalization of nature, Romanticism emphasized the importance of feeling, emotion, imagination, and fantasy. The lesson we heard today talks about the necessity of suppressing emotion and imagination, and letting logic dictate actions and behavior. It also makes explicit the connection between Science and capitalism: "Those

who are painting should paint no longer, but do something useful to contribute to the global economy." According to this text, the greatest sin is to pursue something for its own sake, instead of for its utilitarian value. This is a sin against the third member of our trinity, the Spirit of Progress.

The Spirit of Progress, also known as the Idea of Progress, is the theory that advances in science, technology, and social organization can better the human condition. It constitutes the belief that people can have increased happiness in terms of:

- quality of life (social progress)
- economic development (modernization)
- application of science and technology (scientific progress)

The Spirit of Progress first manifested itself towards the end of the Enlightenment, in the 18th century. It had many American adherents, among them Benjamin Franklin, Thomas Paine, Thomas Jefferson, and John Adams. The major American contribution was the idea that history was not exhausted, but that it could begin again in New World. This was essentially a democratization of progress, making it open to anyone regardless of birth or socioeconomic status. The notion that America is a highly favorable place for people seeking progress in their own lives constitutes the American Dream. The idea that progress is not just possible, but inevitable is still the basis of U.S. culture.

And that brings us to the present, today, right now, as we are gathered here to celebrate Science, Technology, and the Spirit of Progress here in Lawrence, Kansas. I know that many of you are already believers, and we rejoice today in our common faith, but some of you may still be uncertain about your beliefs. I encourage you to explore

the Temple of Science, including our online presence, and to visit with me or other members of the congregation to hear about the marvelous works Science has done in our lives. When you bring your full reason and intellect to bear on the situation, I am confident that you, too, will soon come to see the true nature of our faith.

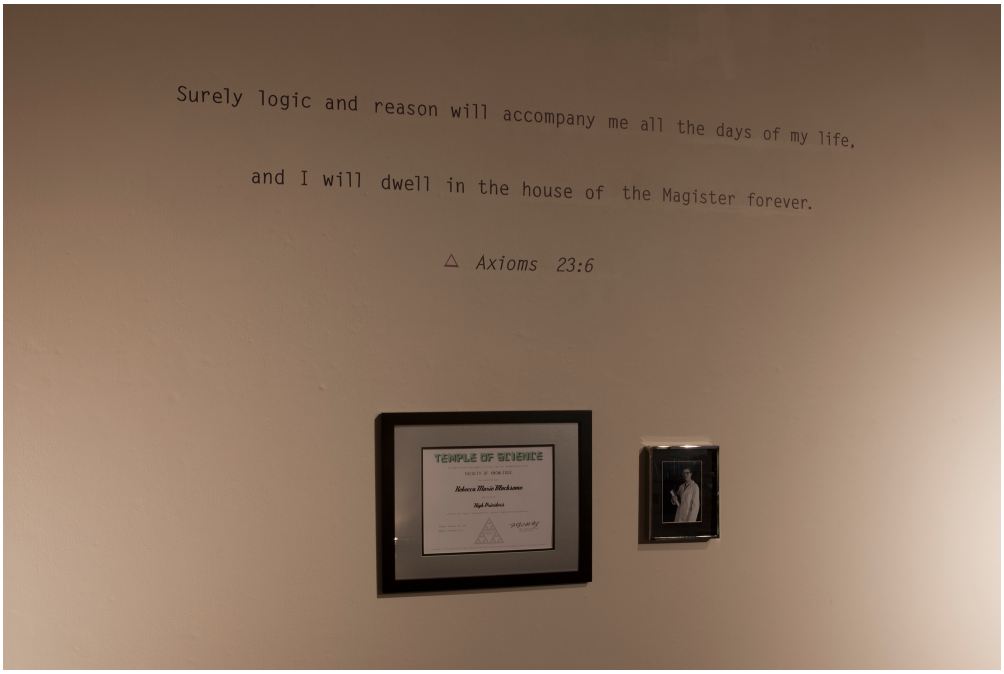
Appendix 3: Images

All images are from the *Temple of Science,* mixed media installation and performance. Photographs are copyright Ryan Waggoner, 2014; the artwork itself is licensed under a Creative Commons Attribution–ShareAlike 4.0 International License, 2014.

1.Detail of Saints Bacon, Descartes, Galileo, and Newton. Adhesive vinyl on glass, 18” x 24”.

2.Installation shot, southwest corner of Art & Design Gallery.

3.Installation shot, northwest corner of Art & Design Gallery.



4.Installation shot, north wall of Art & Design Gallery.

5.Detail of high priestess's vestments. Cotton and polyester with machine embroidery.

6.Detail of eyewash station. Ink on paper, 8.5" x 11".

7.Detail of diploma and portrait. Diploma: digital print on paper with colored pencil, 11” x 14”. Portrait: digital print on photo paper, 5” x 7”.

8.Detail of altar with guest book and bunsen burner candles.

9.Installation shot, northeast corner of Art & Design Gallery.

10.Installation shot showing altar, (30” x 72”) lectern (24” x 48”), and vinyl wall mural (4’ x 29’).

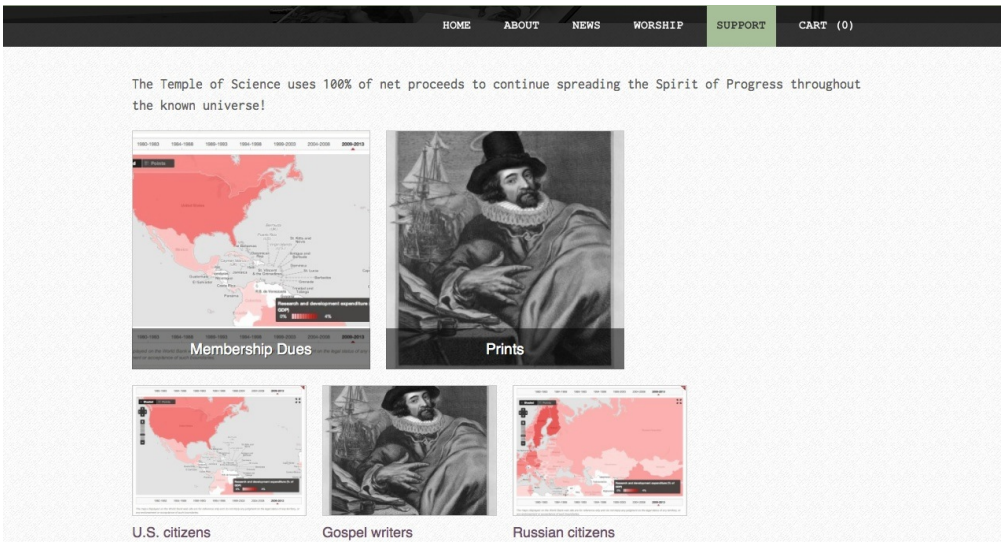
11.Installation shot looking north.

12.Installation shot looking south.

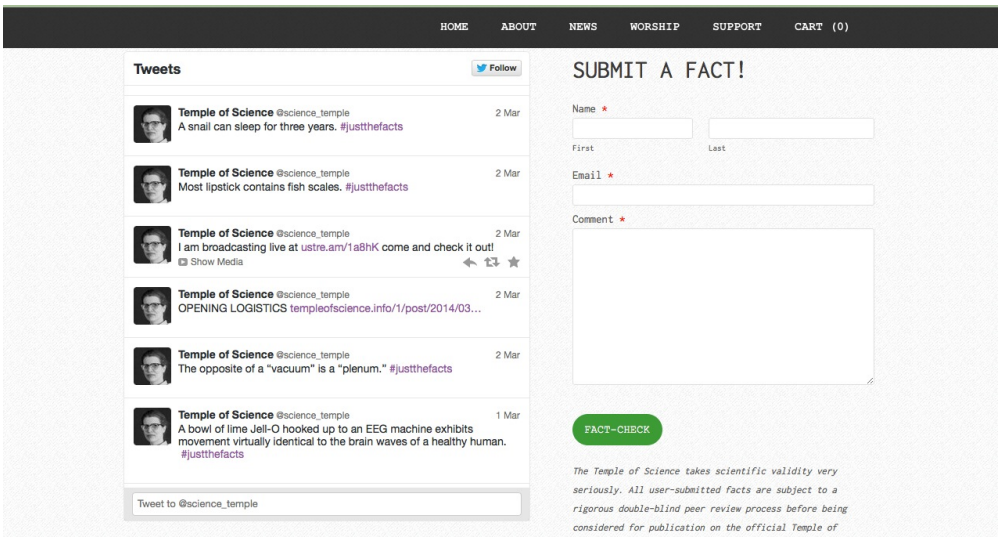
13.Installation shot looking west.

14.Installation shot looking west, showing digital projection.

15.Screenshot of Temple of Science home page. Interactive media, shown on 13” widescreen monitor.



16.Screenshot of Temple of Science store. Interactive media, shown on 13” widescreen monitor.



17.Screenshot of Temple of Science Twitter feed and fact submission form. Interactive media, shown on 13” widescreen monitor.