

**THE UNCERTAINTY OF**  
**BELIEF**  
**QUESTIONING YOURSELF &**  
**SOCIETY**

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**THE OXBOW SCHOOL**



My animation is about belief, uncertainty, and unrest. I spend a lot of time feeling uncertain in the way I look at the world. I went into my research to see if I could clear up my thoughts, but I ended up with far more questions than answers. I illustrated this feeling of unease throughout my animation. It follows the thought process of someone while their mind is wandering. They question the future and their place in that future. I find myself often doing the same thing.

Two subjects that I have always been drawn to are angels and aliens. I find myself making designs for different types of aliens in my spare time, and angels used to be my main muse when creating artwork. I realized these concepts symbolize predicting of what the future might turn out to be; they are good symbols for both the natural and the supernatural ways of looking at the world. Therefore, a good way to showcase my uncertainty and fear of the unknown is through these two futuristic subjects.

I chose to animate the angels using a rotoscoping technique (in which I animate over live action footage) and the aliens using digital frame-by-frame animation. Rotoscoping gives the angelic figures an eerie realistic edge, and the frame-by-frame presents the alien segments in a more lighthearted matter. The imagery is a subversion of the mainstream depictions of both, with most depictions of angels being more lighthearted and most looks into a natural future being more dystopian. I subverted those themes because my drawings of aliens have always been a fun pastime, while my work with angels is typically more dramatic and grounded.

My main goal for this animation is multifaceted: first, that it is enjoyable to watch; and second, that people leave questioning their own place in the universe (perhaps, with more emphasis on the former than the latter).

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*In this paper, I explore the question: can you personally live with a balance of science and religion; and can society? I went into this paper to explore different viewpoints by conducting interviews, with a hope that it would help me come to a better conclusion for myself. I also looked into modern day and historical issues with both sides of this debate. Finally, I looked at the definition of faith and reason themselves, for another basis of exploration. It's a touchy subject that isn't talked about often in day to day life. Yet, some mixture of religion or science creates the basis of the majority of the adult populations moral beliefs and moral code. Since these are both subjects that influence almost everyone on Earth, it seems important to find middle ground to stand on going forward.*

*“One of the greatest tragedies of our time is this impression that science and religion have to be at war.”*

-Francis Collins, Director of the National Institutes of Health

No matter where you turn, or who you turn to, you will see signs of one of humanities greatest debates: the divide between science and religion. Lately I've been struggling to find a personal balance between the my faith in the universe, and my trust in science. Even wondering on occasion if a living life with a blend of reason and faith was even possible. I started researching this topic to find out other people's point of views, and how they came to be content with their lives. While I struggle to find balance, daily I see others who are content with their own mixture of faith and science. It's a topic that I have strayed from in the past, for fear of confrontation with others, but more for fear of confrontation with myself. I have waded through life, had religion/science debates, went to church, accepted what was taught to me in science, without ever asked myself what I truly believed in. This is not a call for anyone to change their beliefs; if anything, it was a challenge against solely my own reasoning behind the world. It's hard for me to talk about something this personal and divisive, but I feel the time has come for me to justify myself.

My beliefs have changed drastically over the years. When I was a toddler, I believed mainly in the Hindu gods, due to the woman who ran my daycare teaching me about them. A large painting hung in her house, of Ganesh, Shiva, and Pati. I fuzzily remember always looking up at them, and genuinely believing they were looking back down on me. The stare of an entire family of gods watching me while I played with all of the other children.

When I moved away, at six years old, my mother's friend gifted me with a framed picture of that family of gods. It's the only piece of art I've carried with me my entire life. They're the first gods I ever believed in.

From first grade to third grade, I was Buddhist. My friend had converted me, so to speak. I spent my entire days after school with her family, and they had converted me to their own religion. I went to temple on Sundays, and it was alright. It was the start of my church-going years where I thought nothing much of whatever religion I was a part of. I would go to ceremonies and celebrations, but I didn't have a defined concept of spirituality or a God. Yet, unlike my younger years, I was more ambivalent than I was comforted.

I recall around the same age my other best friend at the time telling me I was going to go to Hell because I wasn't Catholic. She hugged me and begged me to convert, so that we could still be friends when we died. I didn't think much of it at the time, thinking of Hell at that point as only a curse word rather than a place of eternal agony.

The next years, from approximately fourth grade to last year, in terms of religion, were blurred. I went to Roman Catholic church, Protestant church, temple, and I dabbled in Paganism for a while when my older brother decided to spite our Christian father. Nothing was similar to comfort, and my spirituality was mostly non-existent. However, what I lacked in genuine belief in a spirit, I made up for in a love for church in general. I loved the atmosphere, all the friends I made there, and all of the good food. Whenever I was in a church, I felt an immense amount of

spiritual connection to the people around me. I still love church, and while I don't currently have a religion to call my own, I would love to return to some religious community when I'm more settled down in life.

My mother is a scientist. I was raised to trust what scientists had to say about the world; that anything could be explained if you only knew where to look. My mom and my step-dad are hard atheists, and my dad and stepmom are Christian, but not devotedly. My grandmother, has terrible experiences with religion growing up and discarded it. A few family members hate me since they, like my second-grade friend, are convinced I'm going straight to the bad place. Various family members of mine are devoted dedicated to their religion, and fights over the topic of science or religion are not uncommon in any family gathering.

I believe in a higher power. I enjoy having a spiritual side to explain all of the questions science will never be able to answer. I pray on the occasion, and my true heartfelt belief in a supernatural side to the world has only grown over the years. I've partaken in many faiths across the years, and I often found it to be a comforting and enjoyable experience. While I have been negatively impacted by certain aspects of certain faiths, overall I enjoy having a church and a religious community to call my own.

I believe in scientific creation stories as well. Although, it's an interesting aspect of myself to reflect on. I often find my belief in science to be faith based, just as my belief in religion is. For this project I looked deeply into scientific reasoning behind concepts I always assumed were true, just because the scientific community had told me about them. All of the proofs make sense if you put a lot of thought into it, but I had never done that before. Maybe my faith based beliefs are because of the way I was raised, but it seems my scientific beliefs are as well.

In society at large, people try to act as if science and religion are two polar opposites, that one cannot have a healthy middle ground between faith and reason. Outspoken members of both groups often spread bad messages about the other. It isn't uncommon to hear religion used to denounce science, or vice versa. In fact it's practically commonplace, and often perceived as a black and white issue. Yet, approximately half of all scientists are affiliated with some intensity to a kind of faith based religion (Cruz, 2). Even then, the majority of scientists --religious or otherwise-- say they hold nothing against religion; in addition to the majority of religious people believing in at least some scientific principles (Eklund). However the fight between these groups seem to be plastered all over the national news on any topic. With the extremes of both sides being the main focus. Religious people calling for religion to be taught in schools, and calling scientists god-hating demons; and on the other side scientifically minded people calling religion a delusion, harassing people at religious ceremonies, and burning bibles on YouTube. It's a heated debate, where both sides appear to have no respect for their sparring partner.

Science is important in numerous ways, to work to heal our planet, to discover how to heal the sick, to create technological advancements, and to provide answers for all of humanities questions. Yet religion is important for a large majority of the world's population. Over 84% of people align themselves with some kind of religion. Religion can bring comfort, community, and a sense of stability to people's lives. Both religion and science play instrumental roles in our current society. Nothing is going to change until both faith and reason acknowledge that human society would never function without the other.

In my personal life, I've mostly ever met people who align themselves with one side or the other. With faith or with reason. I wanted to reach out to more people who live day to day with both science and religion. For this project, I figured a good group to reach out to would be

religious scientists. Due to most people's busy schedules, everyone I contacted opted for me to send them a list of questions rather than having a phone interview. I sent everyone the same four questions to get a brief overview of their beliefs.

### Survey Questions

1- Are you a part of any religion? What one? What field of research are you currently studying?

2- What are your overall beliefs on how science and religion should coincide?

3- Do you ever run into clashes with your scientific beliefs and your religious beliefs?

4- How does your religion and your scientific field impact your view of the world?

I got responses from four people, and it was an interesting opportunity to see different people's responses to the same questions. Every person who I talked to had a different view on how science and religion should coexist. It was a good experience hearing from all of them, and learning more about varied points of view.

One of the people I got a chance to hear from was Tarana Arman, a Toxicology PhD Candidate. Arman grew up with a secular childhood, due to having a Hindu mother and a Muslim father. While she doesn't align herself with any particular religion, and she does regularly attend a secular Church service. This is a belief that is not uncommon in the scientific community; being spiritual but not attached to a particular religion. It's a way to remain close to a spiritual side of their humanity, while not associating with some of the less tasteful parts of religion. As Tarana said in her responses, "Religious scriptures have some beautiful opinions about life. They have been written down by people who have experienced it first hand, when science as a subject was still emerging. But, following everything to the T is human stupidity." Tarana still believes in God, and keeps her spirituality intact, but for all measures of the natural world, she has complete trust in science.

Secondly I spoke to Yadira Pérez Páramo, a pharmacogenetics student. Yadira is Catholic. On her thoughts about how faith and reason interact, Yadira said "Both are seeking to improve humans quality of life. Both have good intentions." Yadira also spoke about how whenever she runs into clashes between her religious and scientific beliefs, she simply avoids them. That both are necessary in certain situations, and that both are good. Similar to most religious scientists, she believes religion is good for the compassionate side of humanity, and that science is good for the rationale part of society.

The third person who responded to me was Ruby Siegel, a pharmaceutical science student. She is also an actively practicing Christian. As many of the people I talked to agreed, there is no way for religion and science to always blend together. Siegel thought similarly. There will always be ways that a belief in faith, and a belief in reason will clash together. One thing she mentioned was that she struggled with ethical dilemmas, and whether science and religion should

ever be the determining factors on any issue. Although, when asked if faith and reason could coexist Ruby said, "It is easy for science and religion to coincide because they answer different questions. Science focuses on the physical world, investigating "What?" and "How?". Christianity explores the spiritual world and the human heart, answering the question "Why?". One of the most common beliefs among religious scientists, according to Eklunds research, is the idea that they are simply working on different planes. One is working on the natural, and the other the supernatural. That maintaining a separation between the two is the easiest way to keep the peace between faith and reason.

Last but not least, I got the chance to hear from Phillip Wibisono, a biomedical science student. Everyone I spoke to previously had at least a little affinity with religion, but Phillip was a stark atheist. Stating himself "When I was a Catholic, 'my worldview clashed with the evidence presented by the science and I had to make a decision. I could either reject my faith and follow the evidence or reject science to preserve my faith, I chose the former of the two options.'" When I started to reach out to scientists, I expected more people's responses to be similar to Phillip's. However, as I mentioned before, only half of all scientists are atheists or agnostics. There's nothing wrong with believing solely in science on a personal level, and it's not at all uncommon in the scientific community. The difference between the amount of religious people in general society is 30% higher than the amount of religious people in scientific communities (Ecklund). While in this paper I do mostly talk about how to balance religion and science in your life, there is nothing wrong with simply picking one side or the other. Phillip also states he has nothing against religion, and that "While science isn't a replacement for religion and shouldn't be considered as one, it will probably unintentionally snuff out religion in the future due to the ever increasing base of knowledge."

Of course, these are all a teeny tiny amount of the widely varied opinions within the scientific community on how religion and science should interact. Given the chance, I would have liked to interview even more people about this topic. I'd recommend the research of Elaine Howard Ecklund to anyone looking for more in depth explorations of the religious aspects of the scientific community.

I was surprised that everyone who responded back to be had a pretty different idea on how science and religion interacted. This process of reaching out to people about their views was helpful to me when considering my own beliefs. It's a topic that is seldom talked about in the religion vs science debate, all of the ways people live contently somewhere in the middle. I do sincerely believe that only a minority on both sides are extremely anti-religion or extremely anti-science, and there isn't going to be a much of a change in the debate until people start talking about that. There are people doing important work to further science while holding a sincere belief in their religion. There are religious leaders who trust and hold a sincere belief in science. The seeming "war of religion and science" seems to only be a war between the two extremes, and not a war the majority of people fight. How did this war even get started in the first place?

While it's a struggle to find a personal balance, it's a much harder struggle for a government and the people to decide on a way to balance out society. It's a struggle that's been going on for the better part of human existence. An easy example of an early feud is the Copernican revolution, where Nicolaus Copernicus began to question the way our galaxy moves around us. He proposed the idea that the Earth moved around the sun along with the other planets in our solar system, and that our galaxy was one of hundreds of galaxies in an infinite cosmos. While his work was revolutionary, at the time people only accepted it as speculative. As simply a way of making up new hypothetical mathematical equation for predicting the movement of stars.

Yet, his work inspired a good amount of people to wonder how the universe did come to be. As I'm sure you've heard, this is where countless accounts of fighting between the Church and science started to flare up. As the scientific revolution began, the Church began fighting back on any scientific discoveries that were being made.

At the time, in Europe, the Church held more power than any other body. So that whenever anyone questioned anything the Church believed, even from within the Church, they were met with resistance so the Church could hold onto that power. An interesting parallel to make at this time is that the good majority of scientists back then were religious themselves. Many simply believed that it was God who had created all of scientific principles they were discovering. Giordano Bruno famously thought that since God was infinite, why would the universe be any less than boundless? Looking back on famous disputes of religion and science, it appears as an insider battle. While nowadays it's much more common to see an atheist vs religious person debate, it used to be religious people going up against other religious people. Simply targeting the Church's absolute power, rather than any issues with a fundamental belief in God. The solution there was simply to weaken the power of the collective, rather than to destroy every individual's spiritual beliefs. When only one entity has power, and they pretend to have divine power on their side, they take too much control over a society and start to cause issues.

It's best to leave people be. To let everyone have their own spiritual beliefs, rather than forcing conversion onto a whole continent or the whole of the human race. Even forcing people to give up their religion is fundamentally wrong. A good majority of religious people are not fanatics, and they don't actually believe everyone needs to be a part of religion forcefully. It's a confusing point that some people believe the best way to fight the issue of a small majority of people being fanatics, with turning the dial all the way around to the abolishing religion itself. It's worth mentioning that many of the laws that focus on simple religious freedom, often obviously target non-western religions. In France, it is illegal to publicly wear any garment that covers your face. While technically, the law applies to everyone, it is targeting Muslim women wearing the burka, or the niqab. Considering the wording of the law bans the burka and the niqab, but it doesn't ban the Catholic habit. If your argument is that modesty shouldn't be allowed, or its sexist for women to wear those kinds of religious garments; the habit should have been banned as well, as it's also a religious pledge of modesty (BBC).

Of course, regulations on religious freedom are important. Nobody should be able to discriminate against or hurt other people based on their religion. I do believe in a strong separation of church and state; but whenever countries go so far as France does, whenever you take a closer look it's more than a precaution against any religion gaining more power, and more of specific discrimination against a particular religion. More scientifically minded countries will come up with excuses, that logically the way to keep religion from having too tight a grasp on a country, you need to remove religion altogether. However, all "scientifically minded" countries that have banned shows of religion, (Australia, Italy, Germany, etc.) do not impose a wide ban on religious coverings, and word their laws to specifically ban certain religions. I promise you, whenever you pull open that curtain of "secularism" it's often just a way of covering up racism, xenophobia, and most commonly islamophobia. At that point you are far from "preventing anyone from getting discriminated against", and you're the ones doing the discriminating.

A conclusion you can draw from this is that religion and science both exist in some sort of a balance. Perhaps there's a way of having just one without the other, but on a large scale that hasn't been observed yet. With too much religion, you have abuses of power and discrimination,



with too much science, you have reason and logic being used as excuses for abuses of power and discrimination. Faith and reason seem to keep each other in check, in a weird way.

At the Copernican revolution, people looked at both the how and the why when considering how the earth revolved around the sun. How, because of looking at the movement of the sun, moon, and stars; and why, because their God was infinite and had created an infinite universe of infinite galaxies. Now, it seems religious scientists are still maintaining that principle. Keeping a healthy separation between your reasoning and your faith, and not overlapping them, seems to be the way most people go.

Yet, keeping your religion and your faith separate can be difficult. I see the creation of the universe, atoms, nature, chemistry, physics, all the way the universe is put together, and it's hard for me to think that it actually came from nothing. Maybe I'm too small to see an entirely scientific world. Maybe I'm just scared of the possibility that I will die and there will be nothing afterwards. I don't know. Why do I believe anything I believe? Why does anyone?

Another aspect of my research was trying to familiarize myself with scientific principles I never understood before this project. I did go into this project to strengthen my relationship with both the spirit and the natural world. I have noticed in the past that my belief in science is faith based, since I never looked into actual explanations for aspects of the world I just took for granted. We all know some of the biggest religion vs science debates that are around today, evolution, creationism, global warming, etc. I wanted to look into all of the explanations behind these phenomena, to strengthen the reason part of myself.

Creation. The universe currently, is expanding beyond itself. You can measure how fast the galaxies are running away from each other. By that logic, at one point, the galaxies were closer together. Approximately 14 billion years ago to be precise. (Hawking). To simplify, the beginning of universe did and did not apply to the laws of physics, it did and did not apply to time, it did and did not apply to matter and substance. To be fair, the currently scientifically theory on the creation of the universe is not easy to wrap your head around. I wonder how many other scientifically minded people, like me, had also previously had a faith-based belief in science, and did not truly understand any of the scientific principles that went into any of the big arguments. Hawking himself made many jokes about the majority of people never understanding his work, and especially never understanding imaginary time. Yet imaginary time as a concept is necessary to understand the Big Bang Theory.

It's an interesting parallel to compare faith based religious people with faith based scientific people. At the end of the day, if Hawking is correct, and most people don't have a true understanding of science, they are as much faithful to the word of a scientist as a religious man is faithful to the word of a priest. No hate of course, I was always similar to that mindset as well. Until this project I had no idea of how the scientists actually came up with the conclusions of how reality is put together, I still don't fully understand imaginary time. It was an interesting part of my own reasoning to explore, who exactly I trust to simplify concepts and explain them to me. I wonder if anyone reading this will trust my word, or write me off. I'm not entirely sure what response would be better. Of course there's one obvious difference. In science, like I did, you could learn and understand the big bang or evolution, but in religion it's never going to be explainable in the natural world. Yet the faith remains the same. It's some common ground to stand on. Often, science is proven wrong. In a hundred years, who knows what will still be considered scientifically accurate. People make the same choice to believe in science as people do to believe in religion. Most people make up their minds, and other people are constantly questioning their beliefs. I have an extreme amount of respect for anyone who has ever

dramatically changed their view of the world. It's scary to confront that uncertainty that exists in any way we perceive anything. Is there any way we will ever get over uncertainty?

Humans have a multitude of questions we will probably never be able to answer. What happens when you die? How was the universe made? Are aliens real? Why am I here? Some people look to the natural world, and some people look to the spiritual world in order to alleviate that uncertainty. For this research project, I spent a lot of time considering big questions through my two ways of looking at the world. Most of this project was scary, and upsetting. It's not easy to confront your fundamental ideas about the universe. I'm not sure what exactly I was afraid of, perhaps of finding that I don't truly believe in the things I think I do. I came into this project without a strong sense of anything. My uncertainty was mostly made worse by this project. My scientific side will never be able to prove God exists or be able to help me cope with the inevitability of death. My religious side will never be able to think the universe is just without purpose, that I exist for nothing and I will die for nothing. Uncertainty isn't a dead end though. If you don't question the world around you, you can fall into extremes of either side. Is there a way for spiritual people and scientific people to coexist? Yes. They often do. Our media like to portray an extreme battle. Yet people are better than the media thinks. People are good. The smallest minority of people use religion or science as a front for being terrible people. Being anywhere on the religion/science scale is fine, as long as you are not harming anyone. It was uplifting to talk with adults who live a happy balance of both. I don't think the arguments or the fights are ever going to stop. Humans will disagree until the sun blows up. Just make sure you know what your beliefs are, and don't be afraid if new information makes you question them. Find what you think of the universe for yourself. Just don't be evil.

**“It's Chaos. Be Kind.”**

-Michelle Eileen McNamara

### **Bibliography**

Baron, Chris, director. *National Geographic: Weirdest Planets*. National Geographic .

Cruz, Helen De. “Religion and Science.” *Stanford Encyclopedia of Philosophy*, Stanford University, 17 Jan. 2017, [plato.stanford.edu/entries/religion-science/](http://plato.stanford.edu/entries/religion-science/).

Ecklund, Elaine Howard. “The March for Science Isn't Anti-Religion.” *ChristianityToday.com*, 24 Apr. 2017, [www.christianitytoday.com/ct/2017/april-web-only/march-for-science-isnt-anti-religion-just-like-most-scienti.html](http://www.christianitytoday.com/ct/2017/april-web-only/march-for-science-isnt-anti-religion-just-like-most-scienti.html).

Greicius, Tony. “New Clues to TRAPPIST-1 .” *NASA*, NASA, 5 Feb. 2018, [www.nasa.gov/feature/jpl/new-clues-to-trappist-1-planet-compositions-atmospheres/](http://www.nasa.gov/feature/jpl/new-clues-to-trappist-1-planet-compositions-atmospheres/).

Hawking, Stephen. "The Beginning of Time." Public Lectures. 1996,  
[www.hawking.org.uk/the-beginning-of-time.html](http://www.hawking.org.uk/the-beginning-of-time.html).

Hawking, Stephen. *A Brief History of Time*. Bantam Books, 1988

King, Georgia. "Should We Leave Earth to Colonize Mars? ." *Quartz*, Quartz, 10 Feb.  
[goo.gl/452Mep](http://goo.gl/452Mep)

Ramachandran, Vilayanur. "3 Clues to Understanding your Brain." Ted. March 2007.  
Lecture.

"Second Law of Thermodynamics ." Edited by Nancy Hall, *NASA*, NASA, 5 May 2015,  
[www.grc.nasa.gov/www/k-12/airplane/thermo2.html](http://www.grc.nasa.gov/www/k-12/airplane/thermo2.html).

Sacks, Oliver. "What Hallucinations Reveal about our Brains." Ted. 2009. Lecture.

Sagan, Carl. *Billions and Billions: Thoughts on Life and Death at the Brink of the Millennium*. Headline, 1999.

Tipler, F. J. "Extraterrestrial Beings Do Not Exist," *Quarterly Journal of the Royal Astronomical Society*, 1981,  
<http://adsabs.harvard.edu/full/1980QJRAS..21..267T>

"The Islamic Veil across Europe." *BBC News*, BBC, 31 Jan. 2017,  
[www.bbc.com/news/world-europe-13038095](http://www.bbc.com/news/world-europe-13038095).