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Science and Religion: Exploring Clarke and His Message of Harmony

With a new wave of conflict over evolution education, stem cell research and abortion rights, the age-old fight between science and Western religion has resurfaced. Especially with the current social and political changes, it is vital to challenge traditional beliefs and recognize that the two ideologies can coexist. Throughout *2001: A Space Odyssey* and *Childhood's End*, Sir Arthur Clarke explores the effect of science and religion on the development of the human race and theorizes as to how the implications of each predict its future. In doing so, Clarke reveals that although science and religion have been pitted against each other for centuries, both systems of belief are necessary for human fulfillment.

To fully understand the struggle between science and religion, one must first examine the history of their relationship. The most notable clash between believers in each group was that of Galileo and the Church. Galileo Galilei's research culminated in multiple publications supporting the heliocentric theory, which was in direct conflict with the Church's message. "[U]nder threat of torture", he was pressured to read a confession before the Inquisition, stating that he "abjure[s], curse[s], and detest[s] the…heresies [of] every…error…contrary to the Holy Church" (Beck et al. 191). The severity of the words forced upon Galileo shows the serious nature of this disagreement. The Church's failure to adapt to changing times and scientific advances allowed Galileo's fight to endure. Jerome J. Langford addresses the topic in his book *Galileo, Science, and the Church*. He shares the story of the grand duke who asked for permission to build a

monument over Galileo's grave, but was refused as "Galileo had given rise to the 'greatest scandal in Christendom' " (158). The infamy that developed around the issue has eclipsed its original subject matter. This resulted in the next generation perceiving the church as an antiquated organization.

The conflict continues with the development of educational institutions in the United States (U.S.). When Andrew White founded Cornell University, he proclaimed that it would be "a safe place for science, protected from the authorities and constraints of theology" (Ecklund 3). American universities were founded in part as a reaction to the dispute. Their goal was to create places where science could escape the interference of religion. However, White's declaration reinvigorated the fight by angering conservative people of faith, thus assuring that the quarrel would live on in the American zeitgeist. Over the years, academia remained a nesting ground for struggles between the pious and the experimenters. Issues such as teaching evolution in public schools and conducting stem cell research at leading universities have all caused public outcry. Ecklund asserts that these charged topics "[portray] higher education as the enemy of religion and the friend of science" (4). With a vocal resurfacing of the fight, it is evident that humanity has made little progress and needs a solution to the ancient divide between faith and questioning. The stakes are high for both sides, so a thorough analysis of the issue is critical.

Clarke dives into this struggle and takes a less common stance. In *Childhood's End*, he shows that both science and spirituality are necessary for humans to achieve their full potential. In the last chapters of the book, Overlord Karellen explains why his species came to Earth and forced change upon the human race. He describes worlds that have developed nuclear capabilities and avoided annihilation, only to be "utterly destroyed by forces of which they knew nothing....That is why," he says, "it became necessary to act" (Clarke, *Childhood's End* 174).

Clarke explains that all civilizations come to a crossroads when they enter their nuclear age, at which point they have the propensity to survive or to destroy themselves. In doing so, he implies that while science is necessary, an overemphasis on it can be destructive. The Overlords respond to the human's nuclear achievement with an intervention to assure that humans further advance into a state of enlightenment. This intervention symbolizes the power of religion by eliminating war, hunger, plague, and sin from Earth. It is the religious, rather than the technological, that fuels Homo sapiens' next evolutionary leap: union with the Overmind. While the last human watches this final transformation, he gives a running commentary to the Overlords in their ships. As the stars seem to dim, he feverishly rants:

> It's as if a great cloud is coming up…But it isn't really a cloud…I can glimpse a hazy network of lines and bands…The whole network is beginning to glow, to pulse…There's a great burning column…reaching above the western horizon…[The new generation is] on their way at last…they're leaving the last remnants of matter behind. (Clarke, *Childhood's End* 208)

The Overmind is viewed as the highest form of life and is what many would equate to a god. This completes Clarke's thesis by offering a glimpse at what humans can attain. Clearly, humanity has the ability to reach a purer state of mind, but only through both the scientific and the religious.

Clarke is not alone in his thinking. In *Science vs. Religion*, Elaine Ecklund's report on scientists' relationships with religion, Ecklund collects stories that exhibit Clarke's ideals. Prefacing the individual voices of scientists, she teaches that stereotypes are often false. In fact, "...nearly 50 percent of elite scientists...are religious in a traditional sense and...over 20 percent more...see themselves as spiritual to some extent" (Ecklund 6). Evidence from almost 1,700

scientists shows an irrefutable correlation between the two systems of belief. She continues to provide evidence for this point with a story from Tobin, an economic scientist. Now a practicing Catholic, Tobin struggled with religion in his childhood and early career, but after years of study found a new way to connect. He shares that he "[does] not think that two gifts from God should contradict one another" (Ecklund 31). Tobin perceives religion and science as two different ends to the same means. His statement about science and religion not opposing each other implies that there is a relationship between each method of thought. This is exactly what Clarke suggests in his science fiction novel.

However, Clarke does not end his proposed claim with *Childhood's End*. In one of his later books, *2001: A Space Odyssey*, he revisits the notion that humans triumph in an age of science but later transcend into a higher being. He also illuminates a new truth: that science cannot exist without spirituality and vice versa. In the beginning of his space-age adventure, Clarke tells the story of a crystal prism that appears in the time of predeveloped cavemen. The crystal forces new behaviors upon the tribe's bodies in an attempt to advance their biological potential into reality, changing humankind forever. As the ice age rose and fell, "[the cavemen] had not merely become extinct – they had been transformed" (Clarke, *2001: A Space Odyssey* 35). This mysterious force of preeminence is the only way that humans learn to use tools, birthing communication, curiosity, and technology. The crystal's symbolism demonstrates Clarke's teaching that science cannot come without first feeling the greatness of the world and the wonder that defines spirituality. Clarke reveals the converse at the book's climax. After a mission to study the black obelisk on Jupiter, Bowman sets his space pod down on the surface of the black stone. He falls through a seemingly impassable material and is guided through space until he arrives at a mocked-up hotel room where the final transformation commences. While

Bowman sleeps, the "mind of the creator" once again invades the mind of the human. Time rewinds and the essence of humanity is removed and stored in a separate being: "Even as one David Bowman ceased to exist, another became immortal" (Clarke, *2001: A Space Odyssey* 291). Bowman's fusion with the omniscient being transforms the unification scene into an allegorical lesson. Just as religion begets science, humankind's greatest technological mission leads back to the creator that derived its original form. Clarke's message is evident: science and religion must be intertwined.

Again, Clarke's truths are elaborated upon by important academic figures. Ian Barbour, a prolific researcher and writer in the field of scientific and religious studies, explains how religion contributed to scientific advancements. First, he explains a concept he calls "conviction of the intelligibility of nature" (Barbour 46). The foundations of documented experimentation were invented in Europe, where monotheistic religions with resolute gods dominate society. This is in direct opposition to Eastern theology, where gods are often "too arbitrary or too impersonal" to inspire laws of nature (qtd. in Barbour 46). This proves that the ingrained idea of a rational God, one who has order and gives laws, was paramount for the modern principles of science to form. Second, he writes that the creation story exemplifies the doctrine that "the details of nature can only be known by observing them" (Barbour 46). Monotheistic religions feature a god that creates and destroys at will, so the only way for a human to know something is to see it. This parallels science, where nothing is valid until it can be proven. Finally, Barbour shares the notion of an "affirmative attitude towards nature" (Barbour 47), which is widespread throughout religious documents. The Bible upholds the vitality of nature and cleanses it with a destruction of pagan nature gods. This erasure leaves nature in the command of humans as a possession for

them to enjoy, and more pertinent, to study. Through these three strategies, Barbour builds a bastion for the connection between religion and the rise of science.

Distinguished thinkers also support the second part of Clarke's message, that science returns to the spirituality from which it was born. World renowned physicist Albert Einstein explains this phenomena with the statement that all scientists who are committed to their research "[become] convinced that a spirit is manifest in the laws of the universe" (qtd. in Preface to 'Are Religion and Science in Conflict'). In this way, he says, "the pursuit of science leads to a religious feeling of a special sort" (qtd. in Preface to 'Are Religion and Science in Conflict'). As a winner of the Nobel prize who revolutionized his field, Einstein had some of the most intimate and pure experiences with science. Knowing that this caused him to feel closer to a spiritual force, instead of to reject religion, is a compelling addition towards scientific and religious harmony. Nicomachus de Gerasa, ancient Greek mathematician and author of *Introduction to Arithmetic*, depicts a similar viewpoint almost 1,500 years earlier. He describes his perspective with an image of a universe that is "determined and ordered in accordance with number, by the forethought and mind of the creator of all things" (Gerasa 1:6). To him, the power of numbers in math and science was so mystical that it had to have come from God. In a time with no social barriers to hold back his beliefs, Gerasa is able to publish the most candid account of science and religion. Thus, like other scholars, he illustrates that there is in fact a deep need for both theologies, and that when unified, they form a dynamic equilibrium.

Even though an abundance of evidence supports a relationship between science and religion, society has yet to change its opinion on the issue. A beneficial undertaking is to rearticulate the definition of religion by simplifying it. Merriam-Webster's online dictionary defines religion as "a personal set or institutionalized system of religious attitudes, beliefs, and

practices" ("Religion"). This may seem apparent, but the connotation that accompanies this word often omits the intimate set of religious experiences that affect individuals. Rather, imposed doctrine and unyielding laws enforced by communal pressure dominate. Using the word *spirituality* instead can create a clearer foundation for the scientific-religious conversation. Defining spirituality as the state of "being spiritual", with spiritual explained as "of or relating to sacred matters…supernatural beings or phenomena" broadens the term to encompass one's full relationship to God and the unknown ("Spirituality"; "Spiritual"). With specific religious dogma out of the picture and a more personal and abstract connotation in place, it is easier to ask oneself, "Why must science and religion (or spirituality) be enemies? Can I not feel wonder and strive to understand it in multiple ways?" The simple addition to one's vocabulary results in a huge transformation.

Now both sides of the spectrum are ready for the final step: communication. In *Is the Human Mind Predisposed to Religious Thought*, a short film in the American Association for the Advancement of Science's video series, Professor Justin Barrett shares that the struggles between science and religion are "not really with each other", but rather with "the difficulty of understanding" (4:36-4:42). Although dialogue is a solution to this problem, its implementation can be challenging. For conversation to begin, brave individuals with an open mind and a willingness to reexamine personal beliefs will have to break the silence. Discussions in this manner have previously occurred, but change will not happen until participants come to the table with the impression that they are speaking to equals. Elaine Eklund coins a special term for people that will take the next steps in ending scientific-religious disagreement: *boundary pioneers*. To explain her new vocabulary, she writes that one having the ability to "reconcile his own faith with the work that he does as a scientist" in not enough (Ecklund 46). Rather, it's the

"willingness to *talk openly about* such reconciliation" (Ecklund 46). Too many scientists and religious peoples have stopped at finding personal peace, ignoring the continuing fight that they pacified for themselves. As this changes, humankind can bridge the gap between science and religion through dialogue and find personal balance.

While centuries of stigma and arguments seem to overpower Arthur Clarke's allusions to a stance of scientific and religious compatibility, he is supported by a large number of studies and experts' opinions. His natural combination of the two ideologies inspires the audience to question themselves and the world around them, in turn prompting a new generation to redefine the struggle and start a wave of discussion. The scientific-religious battle has permeated all parts of society and could have lasting detrimental effects. Conservative religious groups advocate for abstinence only sex education, but science has proven that this is ineffective and fosters higher rates of sexually transmitted infections and unwanted pregnancies. Creationists fight for the Bible's creation story to be taught in public schools, a move that undermines the authority of evidence-based science for the rest of students' lives. Religious groups also vocally oppose stem-cell research, as it contradicts their beliefs. This would stop revolutionary and life-saving science from being conducted and would set a precedent for religious beliefs to stifle scientific research. Decisions made about these topics will determine the future of the U.S. Moreover, religious leaders feel the pressure to keep religion relevant in a world of flux, and their relationship with science could be the deciding factor for religion's survival. With the extensive scope of this issue in mind, it is more important than ever to heed Clarke's call, and start a new era of communication and diplomacy. Only then will science and religion finally live in harmony.

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