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Quantum Physics and Relativity in Lovecraft's Fiction

Introduction

In recent decades the focuses of American-English literary scholars have undergone significant changes to expand the American canon as the usual classics have been exhausted of most critical observations. In their stead, literary critics have found a treasury of work from diverse perspectives on social issues from race to sexuality and gender, and also genre fiction which has been so popular among general audiences, but mostly ignored by critics. I shall focus on the latter category of genre fiction, in particular the genre whose golden era lasted from approximately 1890 to 1940 commonly referred to as weird fiction. Specifically, I am concerned with the fiction of H. P. Lovecraft (1890-1937), widely considered the most important figure in the genre during the twentieth century, and surpassed only by Edgar Allan Poe. My purpose in writing is to show the extent to which Lovecraft's passion and interest in scientific inquiry fundamentally molded his literary philosophy in ways equal to or greater than his literary idols. Without the influence of Poe, Lovecraft could not be the same, but without the influence of astronomy, cosmology, or evolution I doubt Lovecraft would be recognizable.

Literary criticism and scholarship of Lovecraft's work has seldom addressed the link between his scientific interest and literary philosophy and tales. Partly to blame is that interest in Lovecraft from a critical perspective has only in the last few decades come into fashion. As he published almost inclusively in pulp magazines during his lifetime, no critical analysis was performed until after his death, and even then the initial response was particularly harsh. The

critic Edmund Wilson, writing for *The New York Times* infamously said of Lovecraft's tales that the "only real horror in most of these fictions is the horror of bad taste and bad art" (TBD). However, positive reviews quickly popped up because of Wilson's choosing to review Lovecraft, unintentionally giving his work more exposure. Unfortunately critical writing was derailed by a friend and lifelong supporter and believer in Lovecraft, August Dereleth. Weird fiction owes a debt to Dereleth as he almost single handedly saved Lovecraft's fiction from oblivion by publishing his tales in hardcover for the first time. Dereleth, however, misrepresented some of Lovecraft's fictional ideas and philosophical approaches to writing by introducing a simplistic moral dichotomy to Lovecraft's amoral universe. Such meddling in Lovecraft's world has prompted the publishing of multiple articles which act more like literary archaeology trying to find Lovecraft rather than deep analysis into his work. Even as recently as 2011, the book *Dissecting Cthulhu: Essays on the Cthulhu Mythos* deemed it necessary to contain multiple essays, which were particularly hard on Dereleth's alterations. Certainly though, I do not mean to imply that critics and scholars are unwilling, unable, or inept when it comes to Lovecraft. I only mean to show that progress has been relatively slower than may be expected, and that the relatively low amount of writing on the importance of science in his fiction may be aptly explained.

For my arguments I primarily, and in many cases exclusively, use the works of S. T. Joshi for critical analysis as he is not only *the* Lovecraft expert, but without any significant rivals, the most knowledgeable expert on weird and horror fiction generally. While I am aware of certain difficulties and challenges with overreliance on a single critic, his accomplishments in the field are unparalleled. With numerous biographies on Lovecraft, acting as an editor to his work, compiling his work, histories of the genre with Lovecraft's predecessors and disciples, and

compilations of Lovecraft inspired fiction, Joshi seems a fairly safe and trustworthy source even on his own. Though other critics are used, the significant proportion of Joshi's work ought to warrant this disclaimer despite my reasons above.

Briefly breaking away from literary criticism, my argument depends upon contemporary scientific developments and theories of the early twentieth century. Subsequently, my readers will be required to possess a similar understanding. To remedy any misunderstandings or the need for secondary sources to understand my arguments, I will include summaries of important scientific theories and discoveries where appropriate. Evolution, cosmology, and general astronomy are the most common scientific topics in Lovecraft, but he delves into topics as diverse as paleontology and spectroscopy. As the title implies, Lovecraft was also significantly affected by the fields of quantum theory and relativity, but many of these ideas were still novel throughout most of Lovecraft's lifetime (the famous Eddington observation which confirmed Einstein's predictions about the distortion of light as it passed near the sun only occurred in 1919). He primarily used the theories in an analogous manner as they conflicted with Newtonian mechanics. More detail on the relationship and conflicts between Newtonian physics and quantum and relativistic physics will be discussed later.

I. Defining the Genre

Like all genres, defining weird fiction succinctly without contradiction or omission is a difficult task. Depending on the time period, the author, or even the tale, a particular genre definition may seem either inadequate or too encompassing. At the very least, the weird tale is something which followed from gothic literature and can be classified as a type of supernatural horror story. In S. T. Joshi's most comprehensive work on the history of Lovecraft's vein of

fiction is the two volume collection *Unutterable Horror A History of Supernatural Horror in Literature* wherein he spends considerable time writing about the meaning and development of the supernatural in literature. Joshi makes the simple yet subtle observation that the meaning and classification of the supernatural requires an established realm of facts. There must exist an understanding that there exists a clear difference between fantasy and reality, or some general agreement about the limitations of what is possible and what is not. Joshi's point becomes clear when considering the meaning of the supernatural. To be supernatural is to defy or contradict the laws of nature, but in order to contradict the laws of nature, those laws must first be codified and understood. If there is no established fact about what is allowed in nature, then nothing can be imagined to violate the accepted order. Science here makes a major contribution to literature by creating a system which is able to accurately determine and explain the rules of nature. Once nature's rules are established an author may imagine a world or being or event which tramples upon them. Such is the reason why literature like *Beowulf* or the *Iliad* may contain monsters and creatures which defy nature, but they are never called supernatural and instead receive their own classifications as mythology. Not to imply that the people of the ancient world had no conception of fantasy and reality or that they believed literally in all of their mythologies. Rather, I hope to make clear that while the existence of particular characters and events may not have been believed, without a scientific method, the *possibility* of such events or similar manifestations was always open. With the Enlightenment and the notion that the universe followed certain immutable and determinable laws, Joshi writes in his history that:

It is, therefore, entirely understandable that supernatural horror only came into existence when, by the eighteenth century, science (and human knowledge as a whole) had advanced to the point

where certain objects or events could be stated with fair certainty to be impossible or, at best, highly improbable. The ghost, the witch, the vampire, the werewolf, the haunted house—these and other motifs only gained currency as supernatural *fiction* once they were banished from the realm of *fact* (10).

Thus the literature of supernatural horror and therefore weird tales is inextricably linked with science as the discipline is necessary to their basic construction in identifying and creating supernatural agents. Joshi picks out the gothic horror tropes of vampires, ghosts, and their ilk as examples of supernatural violations. The importance of such creatures and their literary “currency” is that their value as currency only exists as long as they remain fictional. The purpose of the weird author is not to convince a reader of the existence of the supernatural, but more often to make some observation about the nature of reality or perceived reality. Since the supernatural is dependent upon a factual understanding of reality, Joshi argues that “supernatural horror is a distinctively metaphysical mode of writing, because it allows writers—whether they are aware of it or not—to confront *directly* the very nature of entity” (11). Since the realms of the natural and the supernatural cannot overlap, only exchange well defined territories, the two effectively describe every possible existence with nature encompassing all that could happen and “supernature” all that may not. Thus the creatures of weird tales are not often allegorical or symbolic in the usual sense because they tend to be intimately tied to the described dichotomy, and Joshi’s argument about the metaphysics of the genre follows naturally. Exceptions certainly do exist, especially in the traditional gothic tradition, *Frankenstein* comes to mind as an obvious example, but in the weird writings of Lord Dunsany, Clark A. Smith, Lovecraft, and others is a trend toward metaphysics over allegory.

With the dichotomy established, the weird author must then construct the proper world for their tale to take place. Different authors will of course develop different worlds, but Lovecraft himself makes some of the best remarks on the subject, and since he is the focus of my argument, there is little need to consider the exceptions. In his essay “In Defense of *Dagon*” in which he defends one of his first professionally published stories he writes:

Life in our world will (relatively) soon be extinct through the cooling of the sun; that space is full of such worlds which have died; that human life and the solar system itself are the merest *novelties* in an eternal cosmos; and that all indications point to a gradual breaking down of both matter and energy which will eventually nullify the results of evolution in any particular corner of space. (51-52)

Lovecraft here seems to be discussing the end of human life and the Earth with no care for the species extinction or the death of the sun and its planets. He is not, though it may seem an odd claim, a nihilist or trying to push a philosophy of apathy, hedonism, or pessimism. All he has done is make some candid statements about the scientific truths of the solar system and the universe. He is only ruminating on the knowledge that the universe is of an age humans cannot comprehend, that countless solar systems and stars have already been destroyed, and that the destruction will not stop unless everything else stops first. These facts are not controversial in science and have been known for quite some time. Once established, such facts almost mundane in the world of Lovecraft and serve most often as an assumed background.

Moving further from the metaphysical dichotomy leads to the method of justification or rough explanation for the supernatural events or creatures which take place. Perhaps the most

well-known example is a house becoming haunted after some major malevolent tragedies. Others include monsters or hauntings due to the casting of spells or fulfillment of rites, or a hidden set of rules which apply only to certain non-human entities. In the past, Gothic literature looked to the past to justify supernatural events. There is a reason that the haunted house and ghosts are so popular, they use the inherent mystery in antiquity and old age to justify their existence. The European writers were able to look back on their history and ancient castles. The greatest writer of English ghost stories, M. R. James, wrote the same in his "Introduction to Ghosts and Marvels" that "for the ghost story a slight haze of distance is desirable" (248). However, in the United States there was a significant problem identified by Joshi when he asks "how do you establish an atmosphere of medieval superstition in a nation that did not have a Middle Ages?" (140) In Lovecraft's case the issue was easily solved by looking back beyond country or even species, but looking back at history as a series of cosmic, not human, events. By taking such an outlook on life in combination with his scientific knowledge, which will be addressed more thoroughly in the next section, Lovecraft developed a philosophy known as cosmicism or cosmic indifference.

Passionate love, the death of a loved one, the ascension of nations, the fall of Empires, what are such events and trials in the universe when compared to the movement of the planets, the collapse of stars, and the other cataclysmic levels of destruction in the deepest regions of space? The human experience is not only small given the brevity of its length, but the choices made and the effects individuals have are nothing compared to the vastness and power seen in the rest of existence. Lovecraft's world is one in which there are no gods, no goddesses, no overseer and no afterlife. Humans live alone in a world which is not uncaring out of apathy, but indifferent out of reason. While previous writers may have brought about the vampire to spread

fear, Frankenstein's monster to disgust and sympathize, ghosts to creep and haunt, Lovecraft dispensed with them. A vampire may be terrifying but a cross will serve as ample protection. Frankenstein's monster may chill you, but even he finds solace in the story of Adam. Ghosts may haunt their victims, but most can be dispelled through proper burial or ritual. God, religion was always present in the early weird tales, there was something good in the world, but not with Lovecraft. The fear Lovecraft arouses in his readers is one borne out of the realization that humanity is only an infinitesimal part of an infinite expanse of uncaring space.

Following naturally from tenets of cosmicism or cosmic indifference is Joshi's apt emotional explanation of how the conveyance of the weird tale and its atmosphere is developed "to the exclusion or minimization of other elements, emotions, or motifs—specifically a broad portrayal of character or of those human relations where fear or terror does not play a role" (3). In a universe where life seems to be a tiny, rare accident in which incalculable accidents and random events occurred in just the right way at just the right time to produce humans, Lovecraft felt no need and in fact no interest in cataloguing mundane activities of the species. The human species simply doesn't command the same respect and awe as the rest of the cosmos.

I began with the statement that presenting a succinct and consistent definition of a genre is a difficult task. However with the most of history and necessary framework now in place, there is a wonderful succinct and poignant definition of weird fiction given by David Aylward. He wrote in the now out-of-print journal *BORDERLANDS* that "writers [of weird fiction] who used to strive for awe and achieve fear, now strive for fear and achieve only disgust" (TBD) in a critique of modern horror. His terse statement highlights the emotional impact as the primary goal, but also *how* that emotion is derived. There is not, as is often found in lesser works, a goal to simply terrify the reader by aiming to just be scary. Instead, by reaching for awe, which comes

from the supernatural element expanding the realm of the possible, and finding fear in the contradictions of nature found in the tale. Lovecraft's "In Defense of Dagon" makes the same observation years earlier when he says that "the essence of the horrible is the *unnatural*," (48) and continues to say of Lord Dunsany's "Gods of the Mountain" that "the thought of a *rock walking* is not necessarily repulsive" but when treated properly is a thing of "terror and repulsion" (48). The development of fear in the weird tale is not as simple as a simple ghost or skeleton or vampire which is intended to scare, but a world of such awe that our own being and our own place in the world is made insignificant. Such awe can only be found in the suspension of laws which not only disturbs the reader's sensibilities, but in doing forces the reader to consider a broader and less definitive scope of reality, at least for a short time.

II. Lovecraft's Scientific Passions

The influence of science on Lovecraft's philosophy and literary genre has already been demonstrated, but I hope to go further and demonstrate that Lovecraft's own contributions to the genre are in large part due to contemporary discoveries. The contemporary discoveries are primarily Einstein's theory of relativity (first published in 1905 and refined in 1916), facts concerning the odd behavior of sub-atomic and certain atomic interactions (early quantum theory which became standardized in roughly the 1920s), and the relatively older theory of evolution by natural selection (Darwin first published *On the Origin of Species* in 1859).

Before discussing the influence of something like relativity on Lovecraft's thinking, I think it is worth briefly analyzing the shift from classical Greek philosophers to the scientific method of Galileo, Newton, and others of their kind. Among the first attempts by humans to understand the world was through philosophy, and of particular importance in the European and Western world was the philosophy of the ancient Greeks. Philosophy was what could be called

the first attempt at science. The Greek philosophers attempted to use pure logic and reasoning to determine how the world worked. Perhaps the most well-known failure of this mode of thinking is the infamous notion that heavier objects fall faster than lighter ones, an idea repudiated in almost mythical fashion by Galileo centuries later (I invite any reader with the time to test Galileo's experiment with something like a piece of paper and a pencil, especially one without a background in physics). More illuminating is Aristotle's claims that it is in the nature of objects to tend toward a state of rest. His idea is quite similar to the previous one in that it does make logical sense. If you roll a ball on the ground it will eventually stop. If you watch the behavior of raindrops, they fall until they hit the ground, form small streams, but eventually they too stop and become puddles. However, such an idea is not so much wrong as it is unscientific which I hope to demonstrate is not a distinction without a difference. The primary goal of understanding in science is not necessarily *why* something happens but *how* something happens, shown through predictive power. With Isaac Newton, the idea of tending toward rest is not incorrect, a ball rolling will eventually stop, but misses the fundamental understanding of *how* it happens. Newton introduced the force of friction as a fundamental force in movement. The ball slows down not because of some abstract tendency but because as it rolls it must overcome a much smaller force which is due to the rubbing of the ball and the ground. Although the force is small, as time passes the ball loses more and more of its energy to the force friction before eventually coming to rest. If you rub together your hands rapidly they also undergo the same process and the warmth generated is the energy lost through friction as it is converted into thermal or heat energy. While the older philosophy attempted to understand, they did not have the proper mindset to explain how and for that reason did not have the same predictability and reliability of

later science. The change from what could be called thought experiments to real experimentation led to the rapid change in understanding now called the scientific revolution.

Science, physics in this particularly case, was very far from complete after Newton. Shocking to everyone was that the scientific revolution which rejected the Greek philosophy for Newton and Galileo was itself to undergo the same treatment in the early twentieth century. Albert Einstein wrote in the opening pages of *The Meaning of Relativity* “I am convinced that the philosophers have had a harmful effect upon the progress of scientific thinking” (2). Einstein’s statement was written in reference to the way terms like matter, time, space, and nothing were not developed through experimentation, but through the same logical method which yielded objects tendency to be at rest. Though time and space may seem to fairly simple concepts of here versus there and before versus after, scientific inquiry changed these notions entirely. A comprehensive explanation of Einstein’s theories would be excessive and take up a disproportionate amount of space. Fortunately Lovecraft himself struggled greatly with mathematics so he had only a qualitative understanding, simplifying how much is necessary for a reader.

Briefly the most important aspects of Einstein’s theories concern non-Euclidean geometry and the limitations of classical mechanics (the branch of physics developed by Newton and the type dealt with in day-to-day life). Euclidean geometry is the type of geometry people are most familiar with, that is the three dimensional space everyone perceives to exist around them. Non-Euclidean geometry covers the branch of mathematics which relaxes the axioms used to construct the original. Without getting into complicated mathematical definitions, the best way in which to describe the two is that Euclidean deals with straight lines while non-Euclidean deals with curves. In a Euclidean construction one could describe moving along a curved path as a

series of tiny, straight lines which, from a distance, appear to be curved without aberration. In non-Euclidean geometry the curved is simply the natural path, and one could imagine correlating problem of moving in a straight line as merely the stretching out of a curved path until it appears almost straight. As a concrete example with consequences, it is a well-known fact that the sum of the interior angles of a triangle is 180 degrees. However, in non-Euclidean geometry the angles of a triangle may add up to 270 degrees if the triangle is superimposed on a sphere. By beginning at the top of a sphere and drawing a right angle with both legs reaching the equator, the two legs can then form a third leg which is perpendicular to the other two, thus creating a triangle in curved space with three right angles! Einstein proved that space itself is a non-Euclidean which redefined how the universe is interpreted.

Einstein's theory of relativity provided a framework which was so shocking because it revealed that the most natural and seemingly logical human ideas about space and time were fundamentally wrong. However Newton's ideas were not thrown out by physicists because their accuracy for macroscopic human life is perfectly useful, only the limitations were revealed. Issues with Newton's laws only become apparent at massive scales like the movements and behavior of planets, stars, and other massive celestial bodies. Qualitatively the discovery demonstrated that the human species is not privy to the laws of physics naturally and that the true laws have remained hidden since the start. Humans are too small for relativity to mean anything to use. In the context of the weird tale, Lovecraft made use of the ideas of higher levels of physics to describe the laws obeyed by his creatures. His most famous creation, Cthulhu, from his tale "The Call of Cthulhu" (1926) is a creature which exists in part in our universe, but is subject to a different or higher set of physical laws.

Evolution is the simplest concept to explain as Lovecraft uses the theory primarily for its philosophical implication or as the violation in his weird fiction. Also as evolution is far better understood in the general population than quantum theory and relativity, I feel less urgency in explaining the more specific details. The theory of evolution by natural selection explains how simplistic lifeforms may be selected over time through pressures in geography, climate, predation, and other influences. Lovecraft uses evolution primarily in his philosophy to place humanity in the cosmos on a biological level. As another influence on cosmicism, Lovecraft used evolution to determine how the human species only came to exist after countless years of nonexistence and state in his essay “Nietzscheism and Realism” that “Arcturus would glow just as cheerfully if the whole solar system were wiped out” (71). Evolution is also a common violation in his supernatural tales as he writes of individuals devolving or unable to escape their own evolutionary history. The most notable examples are “Facts Concerning the Late Arthur Jermyn and His Family”, “The Lurking Fear”, and “The Rats in the Walls”.

III. From Gothic to Cosmic

Lovecraft’s unique brand of weird writing changed everything and he has since affected every single significant author of weird fiction, and the change can be seen best in the ways his stories compare to his predecessors. Through my comparisons I do not mean to show that Lovecraft’s work was always superior or more effective. I merely hope to show how some of the limitations of earlier works can be attributed, at least in part, to a less cosmic and scientific perspective. My hope is to demonstrate Joshi’s claim in his history “that Lovecraft’s most important contribution, as far as weird fiction is concerned, is a fusion of the supernatural with burgeoning field of science fiction” (500). While science fiction is concerned with *extension* of

scientific laws, ideas, and technology, Lovecraft devised *violations* in order to create a supernatural which could almost be called fantastic science fiction. While the previous sections showed how scientific understanding was necessary for the development of supernatural tales, Lovecraft's own vein of weird fiction and literary philosophy, I now hope to demonstrate the qualitative importance and difference inherent in Lovecraft.

Perhaps the most obvious work to consider is Mary Shelley's brilliant gothic novel, *Frankenstein* (1818). In my view *Frankenstein* is not only Shelley's best work, but the best individual work published in the gothic period. Little needs to be addressed in terms of plot summary, but briefly the tale concerns Robert Walton as he travels through the arctic in pursuit of scientific discovery. On his travels he encounters Victor Frankenstein as he chases a figure across the ice. Frankenstein tells his story after being rescued from the freezing cold about how he discovered the nature of life itself, bestowed life upon a creature, then was seized by disappointment and cast out his creation. The creature then learned about life on its own and grew hateful and spiteful of mankind, eventually declaring a vendetta against his creator and murdering much of Frankenstein's family.

Of particular concern is the fact that the world in which *Frankenstein* takes place is very much Shelley's contemporary world. She does not only look back to establish her supernatural tales, but looks to the present and the future of scientific inquiry. Joshi writes on the subject that such a choice marked "Shelley's departure from her Gothic predecessors' reliance on mediaeval superstition as the source for terror. It is now the findings of modern science that hold both wonder and terrors" (82). In fact Shelley's novel is arguably a tale of science fiction containing no supernatural elements as the violations of the natural order are explained away as the next logical progression in biology and chemistry.

Shelley also anticipates much of Lovecraft in her protagonist's attitude, but lacks the same cosmic scope. Frankenstein is described as one "often overcome by gloom," (11) and is highly educated and intelligent. His melancholy disposition is appropriate for the gothic genre, but warning regarding "the fatal impulse which led to my [Frankenstein's] ruin" (17) is very similar to Lovecraft's protagonists in that their passions for knowledge opens up "such terrifying vistas of reality, and of our frightful position therein, that we shall either go mad from the revelation or flee from the deadly light into the peace and safety of a new dark age" (355) as he writes in his "The Call of Cthulhu" (1926). Thus the threat knowledge being too great for humans to handle is certainly a shared trait

Differences arise quickly though between Lovecraft's writings and Shelley's *Frankenstein* as far as the role of humans is considered. *Frankenstein* concerns the acts of a human agent and how his actions brought about a very human focused destruction. Each death in the tale occurs to a character with some familial or other close ties to Frankenstein as the direct result of his creation's actions. Philosophically Lovecraft is quite different as the horror and any destruction in his tales are purposefully and necessarily removed from humanity in following the tenets of cosmicism. To continue with the "The Call of Cthulhu" as an example, the tale concerns a creature, Cthulhu, from a different universe, following different laws of physics. The tale follows a man piecing together a wide array of seemingly unrelated events to reveal a secret cult worshipping Cthulhu, who, if ever resurrected from under the ocean, would destroy humanity. While this may not seem too different from the *Frankenstein* model of human agents bringing human disaster, Cthulhu is different because of how the creature is briefly resurrected and the stakes. Cthulhu is brought back to life but not by the cultists actively trying to bring about Cthulhu's reign, but a group of sailors by complete accident. Such events suggest that even

when human agents are actively trying to have a cosmic effect, they fail. Further, Cthulhu's reign would be a seizure of Earth, but the destruction of humankind would not be the goal, merely a side effect *of no consequence* to Cthulhu.

In Lovecraft the consequences of scientists is often not due to the actual discovery or creation as in *Frankenstein*, but the horror and fear imposed upon the discoverer due to the nature of their discovery. Horror in Lovecraft's tales is often due to the learning of the violations and by their inherent break from realities, they warp the reality of the scientist. The act of discovering Cthulhu's existence does nothing to stop the eventual return of the creature. Similarly in other tales, "The Shadow Over Innsmouth" involves a crossbreed of some unknown creatures with humans to create an army, and while the government steps in to destroy them, the tale still ends with the recruitment process continuing. Revelation does nothing, only reveal the place of humanity in the cosmos as insignificant and part of a much larger whole. In doing so, Lovecraft conveys or attempts to convey the same awe he finds in astronomy and other sciences in his story by describing a universe with much more than the human species.

Ambrose Bierce is better known for his Civil War writings, but as those seem to dwindle in the American canon, his macabre tales have survived. The most famous, or at least most printed, tale is "The Damned Thing" a rather simple but still effective tale concerning an invisible monster. Like others, Bierce's tale makes the observation that "We so rely upon the orderly operation of familiar natural laws that any seeming suspension of them is noted as a menace to our safety, a warning of unthinkable calamity," (35) quite similar to Lovecraft's analysis of Lord Dunsany's work and other critics discussed above. Like *Frankenstein*, his tales are again concerned with purely human elements as a man is brought up on murder charges after the victim is killed by the invisible creature. However Bierce does use science as a justifying

force in his tales in a manner similar to the science infused weird tales of Lovecraft though they serve more as a natural explanation rather than the usual purposeful violation. As one character explains:

“At each end of the solar spectrum the chemist can detect the presence of what are known as ‘actinic’ rays. They represent colours -- integral colours in the composition of light -- which we are unable to discern. The human eye is an imperfect instrument; its range is but a few octaves of the real ‘chromatic scale.’ I am not mad; there are colours that we cannot see” (39).

The given explanation is a fairly intriguing but the horror is not dependent or in any way inherent with the scientific statements. The effect is instead similar to the way that early Gothic tales like those written by Ann Radcliffe would often explain away the wonder of their tales by introducing a rational though still rather spectacular reasoning. Lovecraft explores the same idea regarding visible spectrums of light and sensory limitations of humans most closely in first “From Beyond” and then in a masterful display in “The Colour Out of Space” widely considered one of Lovecraft’s greatest works. In “From Beyond” a scientist named Tilinghast has created a machine which stimulates vestigial organs in humans to expand their senses to see the whole or a greatly expanded portion of the electromagnetic spectrum. The invention unfortunately reveals an entirely separate yet functional superimposed world with hostile creatures who kill the entire household in the end. Again though, it is not the invention so much as the revelation which causes the demise of the main characters. Lovecraft also use science as a means to convey and not explain horror which makes the effect all the more powerful. In fact, Lovecraft’s choices regarding *how* he elicits horror by reaching for the awe of the unknown is the greatest reason for

his works longevity. He uses his knowledge to find where the cutting edge or new horizons of understanding exist and pushes and violates those laws. In the case of “From Beyond” he chooses not only to expand on how there can exist matter we cannot see (though he didn’t know it at the time, the facts of the story are very similar to dark matter) but in making the discovery it also made known that entire beings and creatures exist in such a place.

Lovecraft’s tale “The Colour Out of Space” expands the ideas of “From Beyond” in a much more powerful and fascinating manner. In the story, some type astronomical body falls from the sky of myriad properties and indescribable color and confounds all of the best scientists working to learn more about it. The site of the things landing was a farmer’s home and it seemed to be drawing the life and color out of all surrounding plants and animals, including the farmer and his family. The effect of the tale is a perfect fusion of cosmic mystery, awe, and horror. The awe is felt because of the mystery and grandness of discovery, but in the same vein is also felt a fear which arises from the very same mystery. No villain is needed and the entity itself is never even named aside from the title of the story. Lovecraft’s contribution due to his scientific literacy is the fusion of science and horror so that the neither suffers from the other, but they become one in the same.

Robert W. Chambers is the author of the renowned if slightly overstated work, *The King in Yellow* (1895), who, interestingly enough, developed many similar concepts to Lovecraft, but was not read by Lovecraft until early in 1926 (*An H. P. Lovecraft Encyclopedia* Joshi 38). The book is collection of ten tales and prose poems of varying focus and quality. While the first few tales are fairly intriguing and engaging works of weird fiction, the latter half is of a different sort more given to romantic themes and a Parisian background. His opening weird tales “The Repairer of Reputations”, “The Mask”, “In The Court of the Dragon”, “The Yellow Sign”, and

“The Demoiselle d’Ys” are loosely connected by the fictional play also called *The King in Yellow*.

The lore of the fictional play is striking as it in many ways anticipates the usage of forbidden books which was popularized by Lovecraft’s *Necronomicon* though they were created independently. Chambers describes his play in “Repairer of Reputations” by stating “the supreme note of art had been struck by *The King in Yellow*, all felt that human nature could not bear the strain, nor thrive on words in which the essence of purest poison lurked” (4). The writing of the play is supposedly of such piercing truth and human expression that it breaks through the illusions and false beliefs held by its readers, often leading to madness and death. The book is banned throughout the world, though many illicit copies exist throughout the world. The essence of the play’s purpose is what’s most important in its relation to Lovecraft, which is primarily seen in how the play has an effect and why on its readers. First the effects of the play are intriguing because of the philosophical implications. A character in same tale describes the play as containing truths ““which send men frantic and blast their lives. I don’t care if the thing is, as they say, the very supreme essence of art. It’s a crime to have written it”” (22). The statement implies, as mentioned above, that the horror and fear inspired by the play is precisely because it contains absolute truth. Therefore Chambers suggests that absolute truth is his violation of the natural order and by extension that human sanity is incompatible with the truth. However, Chambers leaves the reader with the somewhat unsatisfying dilemma whereby the author of the play is the violator of nature with the product, *The King in Yellow*, the violation. The dilemma of course is how is such a violation explained? What access to knowledge or what ability did the author possess to create such a work? None is given.

In contrast, taking a look at Lovecraft's most well-known tale, "The Call of Cthulhu" (1926) and his creation of the *Necronomicon*, first mentioned in "The Hound" (1922), in which Lovecraft explains how unadulterated truth can be explain in a weird tale. Lovecraft's *Necronomicon* is a fiction tome written by the mad Arab Abdul Alhazred which has survived in rare translations throughout the world. The book is supposedly a collection of rituals, history, and ancient forbidden knowledge revealed to its author through ritual and dream travels. In Lovecraft's case, the book has a very similar history and effect to *The King in Yellow* in that both were banned, both authors vanished amidst rumors, but the *Necronomicon* lacked the artistic beauty of the earlier creation. Instead, Lovecraft's tome horrified its readers by the *possibility* of its truth; in effect, the realization that the ravings of some dead madman may not be mad at all.

Conclusion

The history of Weird fiction began the scientific revolution and the clear development of an accepted realm of fantasy and an accepted realm of reality. From such a distinction, dependent upon the existence of science and the scientific method, arises supernatural fiction and soon afterward the gothic tales horror. The weird tale developed with the purpose of capturing the awe of the world, using similar methods as the gothic predecessors, but in Lovecraft's case, using cosmic history and cosmic time instead of medievalism. Further, the very philosophical underpinnings of his tales, cosmicism, is a direct result of knowledge concerning astronomical location and time, evolutionary dispelling of human importance, and the mental inability for the human species to grasp relativity and quantum theory. Science also played a role as Lovecraft chose how to best violate the laws of physics and he did so in accordance with the forefront of

scientific inquiry. Lovecraft chose to violate nature by expanding the physics of the large to incorporate entire beings and creatures like Cthulhu and the Elder Things. The very idea of higher laws of physics only came to be precisely because of the science which required the acceptance of such laws. Without astronomy, evolution, relativity, or quantum theory Lovecraft's philosophy would necessarily suffer as would the entire genre. It is not in the nature of Lovecraft's fantasy to disregard reality, but to fully understand how best to rearrange and create an alternate terrifying, but awe-inspiring world.

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