

Writing Assignment #1
“The Demon-Haunted World”
Carl Sagan

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Writing Assignment # 1

I. Identify and discuss the primary theme(s) of the book. Be specific. Identify the point(s) that Sagan is attempting to make. What is the purpose of the book?

“This book is a manifesto for clear thought.”

-Los Angeles Times

Not only is the statement made by the Los Angeles Times accurate, but additionally, Carl Sagan proves this true within the context of his book, from cover to cover. In “The Demon-Haunted World: Science as a Candle in the Dark,” Sagan wrote several essays which were brought together to develop an interesting state of mind and food for thought. In this book we are exposed to several main arguments that Sagan clearly was compelled by. The purpose of this book is to really test our level of understanding about the world we live in. We will first become familiar with the dominant theme of Pseudoscience vs. Science which helps shape the entire purpose of this book. Once we develop a better understanding of this theme, we can move forward to reveal how Sagan felt about each of his main arguments. Finally, once we understand the theme and Sagan’s arguments, we will be able to decode and clearly understand the purpose of this book.

The concept of Pseudoscience versus Science has appeared throughout “The Demon-Haunted World” not only as the dominant theme of the book but also as Sagan’s first main argument. Sagan defines Pseudoscience as the assumptions, theories and ideas developed by humans without scientific method or proof. He includes all superstition in this category, as well. Sagan’s argument here is that when there is a lack of science, pseudoscience slips right in and fills in the gaps (Sagan, 1996, p 6). Basically, when humans do not have rhyme or reason about a

phenomenon, they fill in the blanks with whatever explanation they can most appropriately come up with. In chapter 13, Sagan provides us with a significant list of examples of pseudoscience and superstition that humans have developed over time to explain many phenomenon's of the world. Some common ones that we are all familiar with include, astrology, the Bermuda triangle, unlucky numbers, a lucky rabbit's foot, Ouija boards, professional psychics, and the list goes on (Sagan, 1996, p 221).

It draws curiosity to wonder why human brains work the way they do. Obviously Sagan had an interest in this concept considering that his entire book focuses on these human ways of thinking and behavior. Sagan's explanation for why people carry on these pseudoscience and superstitions is that "Science arouses a soaring sense of wonder, but so does pseudoscience" (Sagan, 1996, p6). What this means is that as interesting as scientific fact may be, the human created ideas are equally interesting and shared with greater audiences. Historically, we have seen that pseudoscience is greater spread with the help of word of mouth, newspapers, magazines, book publishers, radio, television, movie producers, and other forms of media. Sagan then poses a thought provoking question to the human race, "Do we care what's true?" (Sagan, 1996, p12).

This question brings us to the part where we can examine science and why it is a crucial element for shaping our everyday lives. At the same time we can understand why pseudoscience and superstition easily slip in and fill in the gaps. The Scientific method is not something brand new to us, however, science has not been something widely shared. Sagan explains that there are "enormous numbers of smart, even gifted people who harbor a passion for science. Unfortunately their knowledge is one-sided and shared minimally. Surveys suggest that some 95 percent of Americans are "scientifically illiterate" (Sagan, 1996, p6). This is a significant number!

Hippocrates has been attributed for introducing the elements of the scientific method. Because science is like risky business, he urged careful and meticulous observations. Hippocrates cautioned for those engaging in scientific research to “leave nothing to chance, overlook nothing, combine contradictory observations and allow yourself enough time” (Sagan, 1996, p8). Maybe this is why more humans disregard science and create pseudoscience to explain the *complex* phenomenon’s of the world. It is simply easier. The pseudoscience and superstition are easier to conjure up in our minds than to follow the scientific method for true fact and accuracy. On the contrary, Science has been successful. Sagan explains that “one of the reasons science has been successful is because of its built in error correcting machinery. Every time we exercise criticism and when we test our ideas against the outside world we are doing science” (Sagan, 1996, p27). This is a valid argument because as we know, science is all trial and error. It takes experiments, doing and redoing, before a hypothesis is published as accurate. It seems that this method is so tedious and humans do not have enough hours in the day to test their hypothesis over and over again, so the concept of science frequently gets pushed to the sidelines.

An interesting point that Sagan brings up is that all of the findings of pseudoscience are developed because they “purport to use the methods and findings of science, while in fact they are faithless to its nature -- often because they are based on insufficient evidence or because they ignore clues that point the other way (Sagan, 1996, p13).” Basically, we can see that the theories and assumptions that are created by the human brain have some validity to them. It makes clear sense as to why people carry a rabbit’s foot for good luck. But we tend to criticize this idea and ask the questions of ‘Is it truly good luck or just coincidence that every time the rabbit foot is around good things happen?’ The obvious answer to this is trial and error -- or experimenting. If a wise old man gives a young boy a coin and says keep this for good luck, the young boy becomes excited but also curious. The only way to find out if this coin is really good luck or not

is to carry it with him and watch the results. Once again we can turn to the question: is this really good luck or simply coincidence?

It is rather interesting to realize that the actions humans take each day are actually methods for conducting science in its most basic form. Even more interesting is realizing that humans do not know they are conducting methods of science. Sagan explains that “if we teach only the findings and products of science -- no matter how useful and even inspiring they may be -- without communicating its critical method, how can the average person possible distinguish science from pseudoscience?” (Sagan, 1996, p21). This again is a valid point made by Sagan. He goes on to argue that the method of science, as tedious as it may seem, is more important to teach than just the findings of science. From Sagan’s standpoint we can see that he truly believes in science as our most trusted source of answers. He writes in his book that science can tell you about things that magicians and fortune tellers cannot. If you want answers, “Try Science” (Sagan, 1996, p30).

Although the idea of science versus pseudoscience is so dominating in this book, we need to move forth and understand Sagan’s second main argument of Reality versus Imagination. Carl Sagan bases several arguments on this idea which makes it a major point throughout “The Demon-Haunted World.” What he was truly implying about this major point is that humans have a creative and gullible mind. We have the ability to use our imagination and sometimes this trait can be subconsciously projected. For example, we can relate this idea to acts of hypnosis. Sagan explains that hypnosis is an unreliable way to refresh memory. It often elicits imagination, fantasy, and play as well as true recollections, with neither patient nor therapist able to distinguish the one from the other (Sagan, 1996, p138). With this idea we can look to claims of alien encounters. We are justified to pose the question; is this real or just imagination? Sagan goes on to explain that some alien abductees say they remember the experience without

hypnosis, but many do not (Sagan, 1996, p138). So, what do we trust in a situation like this and how do we know which facts to believe or not?

In a 1992 Roper poll of nearly 6,000 American adults, 18% reported sometimes waking up paralyzed, aware of one or more strange beings in the room. About 13% reported odd episodes of missing time, and 10% claim to have flown through the air without mechanical assistance” (Sagan, 1996, p64). One might argue that these are clearly hallucinations and purely made up stories. Others may argue that this is justified and a person can truly recollect memories of alien abductions or things of the kind. Sagan explains that Hallucinations feel real; they are sought out in many cultures and considered a sign of spiritual enlightenment (Sagan, 1996, p104). However, it is a challenge to test the probability of truth in these claims because there is only one side to the story. Typically, the only side of the story provided is from the “abductees.” Because they may have been the only victims and/or witnesses of Aliens and UFO’s, their story cannot be put against someone else’s to test its validity.

We have seen through history that claims of these strange encounters and experiences have escalated when “abductees” can relate their stories to real life events. What this means is that humans are able to pull memories from movies, books, TV shows, or even from word of mouth and create an encounter story of their own. As psychologist, Elizabeth Loftus, from the University of Washington put it, people can easily be made to believe that they saw something which they really didn’t. She also argues that the greater the time lag between viewing a movie or hearing false information allows for a greater risk that people’s minds will be tampered with (Sagan, 1996, p140). For example, after Sputnik was launched on October 4, 1957, an increase in UFO sightings occurred. Of the 1,178 recorded UFO sightings in America that year -- 701 or 60 percent occurred between October and December. The reasoning maybe as simple as more people were out looking at the night sky more often and saw more natural phenomena they did

not understand (Sagan, 1996, p72). We can tie this evidence back into the idea of pseudoscience. Obviously when people cannot explain natural phenomena based on factual science, they allow pseudoscience to slip in and fill in the missing pieces. All humans need some type of explanation to help understand the complicated world we live in.

Now that we have uncovered Sagan's main arguments, we can decode and clearly understand the purpose of this book. From the beginning Sagan tells us exactly what his purpose for this book is. He writes, "This book is a personal statement, reflecting my lifelong love affair with science" (Sagan, 1996, p25). So what does this have to do with us? As previously mentioned, the purpose of this book for us is to really test our knowledge and level of understanding about the world we live in. It brings up questions about faith, reality, imagination, strange encounters, science and pseudoscience. It leads us to question the concepts that we have learned in life as well as the reliability of each epistemology. It sends a signal to our brains to really want to know more about this crazy world we live in. In addition, this book serves as a way to show how the human brain functions all using cited references of research and historic examples. As *The Los Angeles Times* put it, this is truly a manifesto for clear thoughts.

II. What evidence does Sagan offer to support his position? Be specific. Is that evidence compelling? Why or why not? Discuss the quality of his evidence.

Sagan provides us with the most compelling arguments throughout the entirety of his book and proves his points using several credible sources which validate his positions. Although we spent a lot of time uncovering the argument of Pseudoscience vs. science previously, let's now take an extra moment to look at some compelling evidence that Sagan uses to prove his position. The most compelling argument that Sagan proposes in the beginning is that science can tell you about things that magicians and fortune tellers cannot. If you want answers, "Try Science" (Sagan, 1996, p30). A great example that he uses is of scientific theories we learn about in school. We can see that Isaac Newton did not become successful in his scientific endeavors because he filled in the gaps by dancing to the Gods for answers. Instead, he spent time experimenting until he concluded with clear and logical answers. Today, we can refer to theories such as the Law of Motion, and the Inverse Square Law of Gravitation to answer questions about physics and even to predict when we can see the next solar eclipse. The best part of this evidence is that Sagan completes his paragraph with the statement: "Newton knew what he was doing" (Sagan, 1996, p33). The quality of this evidence should be held very high because Newtonian Dynamics, three hundred plus years later are still widely taught and implemented all over. If this man did not know what he was doing, then the chances of a Nobel Peace Prize would not have been likely.

The next argument that Sagan makes is one that I often reflect on when I hear about scientific explorations taking place in the real world. Sagan explains that abandoning Science leads back to "poverty and backwardness" (Sagan, 1996, p38). I want to point out how accurate this statement truly is! There is no need for any outside evidence to support this claim because

realistically, a stop to science is clearly a stop to humanity. However, if evidence is what you require to prove this argument, simply open the book. ☺ The United States of America has developed more than most of the other countries in the world. Running side by side with us are Russia and China. Although these are just the top three examples, there are a handful of other countries trailing behind. What this means is that for hundreds of years humans have experimented and developed new ways of life. Things have become easier which has led to what appears to be a simpler and a more lazy culture. However, no matter how lazy the culture appears, it is actually the opposite. The technology and modernization was produced by hard work, research and time (just the opposite of laziness). If we were to stop our endeavors of science and live on the way we are today we would certainly become something of the past, stuck in a state of poverty because those around us would continue to evolve. Even if those around us decided to abandon science as well, we would then face even greater problems. Not only would the US fall behind, but everyone else around the world would fall into poverty, too. According to the book, Effective Public Relations, authors Scott Cutlip, Allen Center, and Glen Broom explain that as more and more Americans enter the job market without basic writing, math, and problem-solving skills, American industries will slip further behind in the competitive global market. What we can agree on here is that these skills would not have been possible without the basic scientific method in the first place. If science is taken away, or simply stopped, we can predict serious implications on America, the world, and life as we know it.

This is very compelling to me because I strongly agree and have this “fear” that there is no turning back unless we are ready to fall backwards and very hard. Once we decide to give up science we allow an open door for pseudoscience to flood right in. We have spent so long trying to come up with answers to the world’s most intriguing phenomenons. It would be counter productive to stop now and make room for the plethora of pseudoscience to take over once again.

It would be like going back to the future to times of slavery or the Salem Witch Trials, for example.

Let's now move forth and examine compelling evidence that Sagan uses to explain Hallucinations and whether they are reality or imagination. The evidence used on page 104 and 105 in "The Demon-Haunted World" about hallucinations is very compelling because it makes you wonder 'to what extent are people telling the honest truth?' (Sagan, 1996, p104-5). For example, Sagan uses the *International Census of Waking Hallucinations, 1894*, to show how ordinary, functioning people have experienced, at least once in their lifetimes, a vivid hallucination. During this time, the rate was at 25% of people surveyed. If a recording was taken in 2008 the number would probably be closer to 75%. Hallucinations are not just visualizations that people have for one reason alone. Sagan explains that hallucinations can be elicited by a campfire at night, under emotional stress, during epileptic seizures, due to migraine headaches, or high fever, or by prolonged fasting, or sleeplessness, or sensory deprivation. Also, hallucinations can be in the form of visualization, or hearing a tone of voice, or simply Deja Vu (Sagan, 1996, p104-105).

If hallucinations can be triggered by almost anything, then how does one evaluate the accuracy of a situation? If we look back in history to the Salem witch trials, we can recall that accusing a man or women to be a witch was used as revenge. If you did not like someone for what ever reason, why not accuse them of being evil and watch them burn at the stake? Abigail sat in the court room and created an illusion of hallucination. She told everyone this evil story about how she was harmed by a witch. Her story went on and on and eventually, several young girls continued to play along. Soon enough, people were accusing each other of being witches just to see revenge done to those they were not fond of.

In more modern situations, we have the basic "CSI" storyline of rape and murder cases.

The detectives gather information from several individuals, either related to the victim or directly linked in with the crime. People are so able and capable of stretching the truth, not telling the whole truth, or even denying knowing anything about the truth. So what is true? It is entertaining to see how movie and TV show producers create a story line and whenever someone tells their side of the story, the screen changes to show a hallucination that is taking place in mind of the story teller. On the subject of "CSI", let's examine rape cases. Often times we see that when a person has been raped and/or harmed in anyway, they become distraught and untrusting of everyone around them. These people fall a level below sanity and tend to be frightened easily. In Chapter 9, Sagan explains that "some alien abduction accounts may conceivably be disguised memories of rape and childhood sexual abuse experiences. It makes clear sense that if someone is effected in such a terrible way that they will do just about anything to hide the truth and simply try to get it out of their memory as best as possible. Sagan makes an accurate assumption about how some alien abduction stories are actually hallucinations that helped cover up the true encounter that the individual was exposed to.

Going back to the idea of movies, Sagan uses a great example of hallucinations caught in real life. He uses the example of President Ronald Regan and how he always told the American people about an experience...that had actually never occurred. Sagan writes, "Mr. Reagan told an epic story of WWII courage and sacrifice, an inspiration for all of us. Only it never happened; it was the plot of the movie, 'A Wing and a Prayer' (Sagan, 1996, p140)." As we can see, manipulating the human mind is easier done than one would imagine. We can tie this back to the argument made by Elizabeth Loftus that people can easily be made to believe that they saw something which they really didn't.

In another real life example, it is funny to see how a line from a movie can be associated with a particular situation. It is almost everyday that you hear someone say "You're killing me

smalls!!” or “Kick his ass sea bass!” or other great movie lines. People are able to associate these lines from different movies to express feelings in any context such as being happy, sad, frightened, or even lonely. Because we have this ability it creates a sense of curiosity whether every story told is true or actually being recited from a script. Sagan does a great deal of focus on this concept throughout the whole book and he even goes deeper by examining the *stories* told by people about their *personal* alien encounters and UFO sightings.

From everything we have discussed thus far we can see that Sagan really does use great quality evidence to support each and every position. In addition to good quality, he really hits on using multiple examples and sources to back each other up and prove his point adequately. With the use of so much evidence and credible sources, Sagan really does provide us with the most compelling arguments throughout the entirety of his book. It is obvious that Sagan was compelled by everything he took the time out to write about because it is clearly not just words, rather it is in depth analysis on human minds and why things occur the way they do. I may sound a bit redundant, however, it is obvious that the two main arguments which Sagan focuses on, pseudoscience versus science and reality versus imagination, are indeed what shape the purpose of this book.

III. Critique the book. What are its strengths and weaknesses? What is the most compelling argument for his position? What would you recommend to improve the book?

Overall, I think that this is a good book. It is not something I would recommend to someone for leisure reading, but rather to read about complex and thought provoking arguments. Some of the arguments that Sagan makes would have never crossed my mind before reading "The Demon-Haunted World." Certain areas that he focuses on such as hypnosis or superstition had never been questioned in my mind. I never stopped to think, "what if this stuff is not true?" From this book, I have learned a lot. I have realized that not everything you are told is accurate and rather everything should be tested for a probable truth. Even though this has been a habit of mine, I think that I will no longer knock on wood because it is an unnecessary thing to do and I do not want to engage in pseudoscience theories for good luck. Not only is this reading more advanced but it also forces you to think with an open mind, unlike other easier level books. What makes this a good book are both the strengths and the weaknesses because these things make it unique. In this section, we will first discuss the strengths and weaknesses, then we will focus on some more of the most compelling arguments, and finally, I will provide you with my personal recommendations that may improve this book.

One thing that is done well is that Sagan uses a plethora of sources to defend each and every position. For every argument he makes there is not only one piece of evidence to support it, there are several. Some of the stories or historical facts that he brings up I had never heard or read about before. In a lot of the issues presented there is really no room to question the accuracy of his arguments because several others, with credibility, have supported it or defended it, as well.

A real weakness that I found in this book was the difficulty level. I know that this is college material; however it took a significantly long time for me to absorb this book and its

purpose. Sagan was obviously a very intelligent individual. I realize that these words are most likely his common vocabulary and it would have been a great challenge for him to have substituted in more basic terms. Although the vocabulary and difficulty factor are a great weakness in this book, it is a college level book and is written very well.

On the contrary to the strengths mentioned previously, the fact that Sagan poses questions and then never actually answers them in his own words made it more of a challenge to read. Not only do we have to take the time out to look up the complex terms, but we also have to take every excerpt and every one else's research and decode it so we can understand exactly where Sagan stands on each subject matter. One example, although there are many, if you look to the bottom of page 153 Sagan poses several questions one after the other. He asks about powerful emotions from dreams. He then asks a series of questions, one after the other, "Don't we sometimes awake in stark terror? Doesn't Mack, himself the author of a book on nightmares, know about the emotional power of hallucinations? Why do they believe these witnesses but not those who reported, with comparable conviction, encounters with gods, demons, saints, angels, and fairies?" As we see, these questions are not answered; they are simply posed and left open for our minds to develop the answers for ourselves. But as he continues writing it seems like he only answers one, if any of those questions directly. This contributes to the difficulty of reading and understanding this book and its purpose.

By far, the most compelling remark made by Sagan is something I have always felt strongly about. He says that "plainly there is no way back. Like it or not, we are stuck with science. We had better make the best of it. When we finally come to terms with it and fully recognize its beauty and power, we will find, in spiritual as well as in practical matters, that we have made a bargain strongly in our favor" (Sagan, 1996, p13). How amazing is this statement?! This is my favorite part of the entire book, from cover to cover. We have been given the key to a

secret and lethal weapon. Its outputs can create the most beautiful things. But on the contrary, its outputs can also be the ugliest and most dangerous ones known to man. I argue that there is not one individual responsible or mature enough to hold a key with such power. The crave for power is the most evil thought that rests in the minds and hearts of humans. Through history and in present day we see that this crave only creates chaos. In history, we can look back at the World Wars, the Arms race, the September 11th attacks -- this list can go on and on -- but the point I am making here is that all of the above were a result of pure power struggles. Science gives us not only the key to discovery and saving lives, it also gives the key to destruction and extinction.

In a more present day scenario, thousands of scientists from many countries have come together to develop the "Hydrogen Collider." This Collider has been developed to help answer some of the world's unknowns. The collider will have one of two effects. 1) We can finally discover how life on our planet was created as well as the discovery of life on other planets, or 2) We will recreate the black hole effect and risk the extinction of massive amounts of people who live on this planet we have called home for so many generations. No matter how we look at this, past, present, or future implications, we must always remember one thing ... "Plainly there is no way back."

A second argument made by Sagan that is compelling is about Aliens versus the Human Knowledge. Specifically, Sagan says, "Even we humans who as yet cannot quickly cross interstellar space or slither through walls, are able to clone cells. How could humans be the result of an alien breeding program if we share 99.6% of our active genes with the chimpanzees?" (Sagan, 1996, p65). When I was reading this section in the book I certainly broke into laughter about how some people claim they were abducted by aliens and probed in their private parts! Then I came across this statement by Sagan. Clearly, he has a compelling and valid point. Humans are so developed and educated in many different disciplinary areas such as science,

physics, mathematics, etc. One would imagine that any creature living millions of light years away on a different planet is more educated and advanced. So the question arises, Why would aliens want to abduct us and then use our sperm or eggs to develop alien/human children? This is absolutely absurd, outrageous and hilarious all at the same time. Whether it is true or not, in my opinion it sounds like pure BS.

In any writing, if there are no weaknesses, then it would obviously be a much better book, overall. The recommendation I have to give in this section goes hand in hand with the weakness of the book that I mentioned above. The problem that arises throughout the book is that Sagan poses questions about theory and all other topics areas discussed, however, he never gives a straight answer. He asks the questions then using other peoples work he answers them indirectly. There is never a straight answer provided from his mind or in his own words.

Sagan could have significantly improved his work if he would have given direct answers and firmly held his ground. A recommendation I have to give for improvement is that, if Sagan would have made his argument and then used evidence to support it, decoding what he means would be easier, make more sense, and the substance of his argument would be more powerful.

IV. Does the book connect to what you have been studying in Human Com theory? If so, how? What is the relationship between understanding theory and “doing” science? How is the book related to the “superstitions” video shown in class?

Traditionally, when instructors work on developing a course outline and curriculum they tend to use text books focusing on definitions, theories and concepts. It is not common that books, such as “The Demon-Haunted World” are used to help teach the ideas and concepts within the course. In Human Communication Theory, we not only learn about these theories, concepts, ideas, but additionally, we are able to see how these human behaviors actually are put into effect by analyzing Sagan’s work and the sources he uses to back his arguments. When asked the question, ‘does the book connect to what you have been studying in Human Communication Theory,’ the answer is clearly yes. We will see exactly how this book relates with the course by looking at specific class lectures, the course text book, as well as the History Channel’s “Superstition” video.

From the beginning of the semester, we began focusing on Human Communication which was all material that directly linked with this book. It was not until we began to read the book and analyze the message that Sagan was trying to convey that lead us to being able to actually relate the information gained in class with the book itself. A lot of the following may be repetitive with the previous 1-3 questions, however this is my direct opportunity to take the material from the book and link it in with the course material. Let’s take a look at some examples.

On August 28, 2008 we were asked a very thought provoking question: “Communication, is it art or science?” Clearly this created a bit of confusion because there was no clear cut or correct answer. As we discussed, both of these have commonalities, involve intellectual activities and involve the use of symbols. In addition, we discussed how the steps and skills of the

scientific method are used to develop the actual concept of communication as an art. I would like to tie this back to the argument that Sagan makes about how the pseudoscience that humans create are all developed by using scientific method even if they do not realize it (Sagan, 1996, p13). Clearly, even the simplest theory or idea that is created by a human is an act of developing a hypothesis and somehow plugging things into the scientific method to determine if the hypothesis is true or false. Not every idea is tested, and most pseudoscience is created by assuming the results or outcome and as Sagan mentions, sometimes people ignore the actual facts and believe what they want (Sagan, 1996, p13).

If we move forward to the lecture from September 2, 2008 we see that science is the fifth form of epistemology that helps us develop our perceptions and ideas about the life we live in. This epistemology requires “a discipline pursued by passion” and cannot be engaged in to the fullest capacity without the desire to learn more. Within this epistemology a step of the scientific method takes place which helps reduce our uncertainty of the world we live in. We can take and tie this argument from our lecture into the book very well in most of the examples that Sagan uses. One thing that is beneficial about engaging in the scientific method is that this form of research develops answers that can be replicated each time the experiment is conducted. On the contrary, Pseudoscience cannot be replicated so the probably of truth remains in question and open for alterations.

Another reason why engaging in scientific research is important is because of the concept of ‘Theories of Significance.’ On September 23, 2008 we discussed how the Information theory reduces the uncertainty about this life and the complexity within it. The most sufficient way to make sense of our world and understand things is by testing theories, whether they are our own theories or ones that we get from other sources. A perfect example of why testing theories is so crucial is in the Jim Jones cult conflict. We can all agree that the people who followed Jim Jones

and his ways were not outgoing for themselves. They needed a leader and believed firmly what he preached to them, no matter what the context of his message. The important thing to realize here is that if these people actually tested the accuracy of what this man was telling them and made educated decisions of what life to lead, the chances of drinking poison and dying were less likely to occur. We discussed on September 16, 2008 that people are easily programmed just as animals and computers can be. Our Meta theoretical issues section, specifically the area on mechanistic perspectives, proves how programming and altering people's perceptions is a reality. Clearly these followers allowed Jim Jones to get into their heads and brain wash them to whatever degree he pleased. This example also leads us to the lecture on September 4, 2008 where Dr. Koper explains that skepticism is important because we have to ask questions, gather evidence and dig deeper to understand things. These steps that we need to take are all great examples of the methods of scientific research.

Now, we can take a look at another very compelling argument that was brought up previously. Sagan's argument is that if we stop developing science this will lead us to poverty and backwardness (Sagan, 1996, p38). Not only does Sagan use examples in his own book to prove this idea, but in addition, on September 9, 2008, Dr. Koper explains in a class lecture that science is fundamentally progressive and will always be an abstraction of reality. If science is clearly progressive, the implications of ending scientific research are clearly all pointing in a negative direction. We cannot risk this because it will not only affect the generations to come, but it will directly affect the world as we know it, overall.

Understanding theory and doing science are clearly two different concepts. To understand theory it requires critical thinking skills, however to actually do science, it requires critical thinking but also mechanical skills. We can only conduct science if we know the method. Sagan defends this argument when he explains that "if we teach only the findings and products of

science -- no matter how useful and even inspiring they may be -- without communicating its critical method, how can the average person possibly distinguish science from pseudoscience?" (Sagan, 1996, p21). In clearer terms, if we do not know the method of science, which is the mechanical part, then we cannot test theories and understand them, which is the critical part. When we go back to the question 'is communication art or science?' we clearly see that these two concepts are cross related and without one, there cannot be another. They back each other up and help shape the concept of communication to the very form as we know it today.

If we look once again to the class lecture, September 23, 2008, we learned that the method of doing science is about developing theories and then testing them out. There are two steps in this section that help break down the concept of science and how the critical works with the mechanical and these two steps are called "context." Within the Context of Discovery we develop theories simply by our observations. After we have developed these theories, or hypothesis, we can look to the Context of Validation. This second context is actually science going one step further and testing theories by experimenting and utilizing the steps of the scientific method. Sagan explains in his book why the second context is important to us. He explains that, "When we are self-indulgent and uncritical and when we confuse hopes and facts, we slide into pseudoscience and superstition." However, when we are critical and skeptic about our inquiries, then we tend to resort to science and obtain answers that are most probably truth, especially when we can test and retest and reproduce our findings. This comes to show that the real answers come from research and testing, not from assuming and moving on (Sagan, 1996, p27).

If we turn to examine the Superstitions video we watched in class we can really boil it down to the simple fact that human beings are pretty naïve. We can take it a step further and compare the video with Sagan's book and realize that indeed people are very gullible. Let's start

with some basics, in the video we learned that superstitions date back to the origins of human existence. The only way people were able to explain phenomenon's of the world around them was to dream up reasonable answers. There once was a time that literature, scientific fact and observations, as well as human communication theories did not exist. There was only one way for people to make sense of the complex world around them and that was clearly to answer their own questions with the most reasonable explanations.

We can look to the area in the video where they explain that the Christian Church coined the term witchcraft to describe the peasants who used home remedies to ward away the evil. As we all know, the Christian faith upholds the cross and God above all powers. Real firm believers live their lives day to day to fulfill the Christian path of life. If we look back to history, we can analyze how even the firmest believers contradicted their faith when it came down to witchcraft. In the bible we are told thou shall not kill. But as we all know, the people who were accused to be witches we burnt at the stakes. Sagan even touches on this historical conflict and explains that it was a time when people could blame others for revenge or just because they did not like one another. Witches were tortured, some falsely and this lead to the death of thousands (Sagan, 1996, p120). This was an act of one man taking the life of another because of simple assumptions, accusations, and pseudoscience. This movement in itself was evil and ill-minded. It was bad behavior on any individual who participated in the violence. We can cross apply this bad mindset to the argument that Sagan makes in his book. He explains that when the bible was translated into different languages, this was seen as an act of evil. People were being killed for doing this by other Christians, specifically the Roman Catholics. Once more, this behavior was contradictory to the teachings of the bible and was a sin in itself. Instead of teaching and spreading the word of God, these Christian people were blocking this from happening because it was seen as evil (Sagan, 1996, p122). Clearly, both of these specific examples defend my

argument that people are simply naïve and gullible.

Superstitions are viewed as dangerous by critics because as we heard in the video, superstition is defined as a belief held in spite of evidence. Tie this back into what Sagan was saying that “often pseudosciences are developed because they are based on insufficient evidence or because they ignore clues that point to other way (Sagan, 1996, p13). What we see here is that even though superstitions are defined by scientific explanations, people ignore the facts and sway towards the easier explanations that do not require in depth analysis. If a person is told that it is raining outside they will believe it instead of going outside to check for themselves because believing is simply easier than experimenting.

Of everything we have learned thus far, we can see that the evidence from the lectures, the book and from the video are all interrelated and are conveying very similar messages. Humans behave the way they do because of simple human nature. Today, with the help of scientific research we have been able to describe the patterns that take place in human communication and this skill has been an art in itself. Sooner or later we will be offered a hybrid communications degree, Associates of Art or Science combined and whatever its title, we will know first hand that this is a changing behavioral science and we are the generation helping to mold it like pottery.

V. Relate the book to your own personal experience. Will this book influence you? Why or why not? What will you remember from the book? Why?

What is even more beneficial in a college course is when the material can actually be related to the students' personal life. Typically, in most courses the students become bored of the lectures and readings. It is difficult for the instructor to come up with real life examples that will draw the students' interests. More often the instructors do not take the students interests into consideration to begin with. The course is developed to get the lesson out, hand in an assignment and move on with the rest of the day. It is always nice when there is a tasteful connection with the student and the course. As I began to read "The Demon-Haunted World" I was like, "WHAT THE ..." and then I read on and found some interesting stuff!

The first thing that popped right out and caught my attention was something that hit close to home. I read this passage and stopped to giggle and reminisce on the good old' days. Sagan explains how the media is very influential in shaping pseudoscience. He then makes a statement, "As I write, the number-one videocassette rental in America is the movie Dumb and Dumber." (Sagan, 1996, p26). OH MY GOD! I love this movie. I can recite just about every line because I was a dedicated viewer. Back when this movie came out, I was... I don't even remember, I was young (hehehe...). The greatest thing was when my dad, sister and I would watch the movie over and over and our favorite part was the famous line "Kick his ass sea bass!!!" Believe it or not, until this day, 2008 I still say that line, often. Now this is a great example of how this book directly drew me in, because I realized that although Sagan was an intellectual (genius) man that he was human too and was well aware of popular movies which people spent their free time watching instead of conducting scientific research. He was no longer just a typical scientist to me anymore. Also, this was a great technique in the beginning of his book because it made him seem down to earth right off the bat.

Another part of the book that I connected to my life was when Sagan discussed human imaginations. The attention getter for chapter eight is a section that Sagan clearly applies great writing skills. He writes, “For just an instant I sense an apparition in the darkened room - could it be a ghost? There is a flicker of motion; I see nothing there. Is that a telephone ringing or is it just my *imagination*?” (Sagan, 1996, p137). I am highly confident that almost every human being has had a moment like these where we have heard things in our mind, saw a quick movement of nothing, felt a breeze of wind, or simply got the chills. These things all occur and there is no clear cut reason as to why. I personally have had long nights sitting up in my bed staring at the shadows on the wall just to make sure they are not moving. I tell myself that this is just human nature, I am tired and my eyes are playing tricks on me. Finally, my eyes become too tired to stay open any longer and I fall asleep. This is a common thing that I encounter for whatever reason. Growing up I made a decision that I would not watch gory or horror movies because my emotions are intensified when watching them. This was a brilliant decision I made because no I live alone and the last thing I want is to be in a constant state of nervousness and fear. My whole point here is that Sagan not only has a catchy introduction, but he also finds a way to link in with his readers. I don't believe that Sagan would have expected to be writing for college students in particular; however he does a great job with linking things in to common day practices and emotions.

The last thing I want to specifically point one that Sagan relates to our everyday lives is his idea about teaching students' math and science using sports. It never occurred to me that all of the lessons I learned in statistics 101 were all basic concepts that are used to gather player and team stats on sports teams. For example, Sagan explains that in basketball you must know how to convert a free throw average of 0.926 from a decimal to a percent of 92.6%. (Sagan, 1996, p370). Who would have ever sat down and thought, hey a lay up is Newton's first law of motion;

only Sagan. If only teachers would use this concept of appealing to the interests of their audience, more students could be successful in learning.

If I have not done a good enough job showing how this book has influenced me and my ideas about life, let me lay them out here clearly. I have always been a girl with a good head on my shoulders. I have been known to stop and think before I speak, or to always test out my options before making a final decision. I am outgoing and sometimes risk taking, however I do everything in good taste and with justified reason. A lot of what Sagan defends, such as using science, or not letting pseudoscience slip in to fill in the gaps are things that I try to practice day to day, anyway. However, now that I have really read and understood this book's purpose, I realize that the things I have been doing to grow and learn must continue. They must evolve and become more efficient. In addition, I need to take my wealth of knowledge about the world we live in and share it with more and more individuals. I know that I will not knock on wood like I did before because it has no reaction or outcome. I grew out of having "lucky" items back in middle school so that is not a problem for me any longer. As for believing what others say just because they seem credible, this nativity will no longer have room in my life. I will also do my best to ensure that those around me do not fall into this gullible state of mind. This book has influenced me to really stop and think, ask questions, take my time, be critical and skeptic about theories and about life. As Hippocrates said, "leave nothing to chance, overlook nothing, combine contradictory observations and allow yourself enough time" (Sagan, 1996, p8). These are key factors that I will carry on in life no matter what the conflict or situation entails. Because as we have discussed, pseudoscience is developed by using the scientific method, however the goal that should be kept in mind is to reach for probably truth rather than assumptions and settling for the easiest answers.

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