

CREATING A THIRD CULTURE: HOW TO BRING C.P. SNOW INTO THE 21<sup>ST</sup>  
CENTURY AND FIND A PLACE FOR THE TWO CULTURES OF  
SCIENCE AND ART TO MEET

by

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DEDICATION

I would like to dedicate this paper to my mom and dad for letting me get into this crazy career. To my sisters who talked me out of some breakdowns during this process. And, to my nephew Luke, for just being Luke. I would also like to thank my committee members and especially my chair, Cindy Stillwell, who was willing to read through multiple drafts of this paper.

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## ABSTRACT

In 1959, C.P. Snow wrote an essay entitled *The Two Cultures and the Scientific Revolution* in which he split the intellectual world into two cultures. The first culture is scientific culture; the second culture, on the other hand, includes literary intellectuals and artists. Snow claimed that these two cultures spoke so disparate a language that communication between the two was virtually non-existent. He believed that the self-imposed barriers between science and art played a major role in society's inability to solve the world's problems. As a result, Snow anticipated the need for a *third culture* created by curious non-scientists that would narrow this cultural divide.

I propose that this third culture can be found in a medium that clearly intersects both art and science--and that medium is film. Film looks towards a variety of disciplines for inspiration and ideas and builds upon various fields in order to communicate a message. This multidisciplinary approach is the key uniting the two seemingly incongruous cultures. More specifically, the specific film medium through which the two cultures can best come together is the genre I have dubbed the "personal science film." This genre is a hybrid of the personal essay and the science documentary.

This thesis will defend Snow's demand for both a scientifically and artistically literate public, analyze the historical events in which science and art have come together, and ultimately present a way in which Snow's formerly competing cultures can coexist and find common ground. I will discuss the basics of a personal science film, highlighting the many techniques required to reach a broader audience. I will demonstrate how the personal science film can bridge the gap between the artistic and scientific worlds, forming a *third culture*, and thus narrowing the "cultural divide".

## INTRODUCTION

Statement of the Problem

In 1959 C.P Snow wrote his essay, *The Two Cultures and the Scientific Revolution*, through which he argued that the scientific world and literary intellectuals could be separated into two different cultures. He defined the word “culture” as a shared set of attitudes, values, goals, and practices. Snow refers specifically to the physical scientists (biologists, geologists, chemists, physicists, etc) as one culture, and the creative literary intellectuals (novelists, poets, painters, and artists) make up the second. He then went on to argue that these are two vital cultures in particular who are ignorant of each other. They do not like each other, and are ultimately incapable of effective communication, “the non-scientists have a rooted impression that the scientists are shallowly optimistic, unaware of man’s condition. On the other hand, the scientists believe that the literary intellectuals are totally lacking in foresight, particularly unconcerned with their brother men, anxious to restrict both art and thought to the existential moment” (Snow 6). Thus, he calls this phenomenon a cultural divide. Snow, being both novelist and physicist, believed that he has a foot in both worlds, and is therefore qualified to conclude that the two cultures highly misunderstand each other. Snow believes that the fusing of art and science is not only possible but, in most cases, completely necessary in order to spread the intended information. Science and art do not always have to be opposing forces, but can in fact be used together to achieve common goals. Snow suggests a solution to this dilemma in his 1964 follow-up essay to *The Two*



*Cultures*, entitled *A Second Look: An Expanded Version of The Two Cultures and the Scientific Revolution*. In this second volume, Snow proposes the idea of a *third culture*. This *third culture* would be created by curious non-scientists who could bridge the gap between scientists and artists. Broadly, this third culture will be common ground for these two disparate cultures to meet and converse, thereby instating a public scientific awareness through which society can benefit.

Modern scientific writer Chris Mooney, author of Unscientific America: How Scientific Illiteracy Threatens our Future, claims that the “United States stands on the verge of falling behind other nations such as India and China in the race to lead the world in scientific endeavor in the twenty-first century” (Mooney 3). This is a statement that could have been quoted directly out of C.P Snow’s *The Two Cultures* essay written over 50 years ago. The fact that this statement is still cited is evidence that the problem is still real and the need for a solution is even more real. Continuing the debate of the two cultures into the 21<sup>st</sup> century only strengthens the divide that does not have to be there and cannot be there if we are to find a solution to the growing scientific illiteracy in America.

I propose that the solution to Snow’s demands for a third culture can be found in a medium that clearly intersects both art and science, and that medium is film. Film looks towards a huge variety of disciplines for inspiration and ideas. This kind of multidisciplinary education is key in uniting the two cultures. More specifically, the medium where I believe the two cultures can come together is in the genre best described as the personal science film. This genre is a hybrid of the personal essay and the science

documentary. This thesis will first defend Snow's demand for a scientific literate public, then reveal historic events where science and art have come together, and ultimately demonstrate how Snow's formerly competing cultures can come together and find common ground. I will discuss the basics of a personal science film, including the many techniques which help these films to reach a broader audience. My intention, in particular, will show how the personal film can bridge the gap between the two cultures thereby creating a third culture, and thus narrowing the "cultural divide".

## WHAT IS THE TWO CULTURES DEBATE

C.P Snow's essay *The Two Cultures and the Scientific Revolution* did not receive great praise from everyone. In 1962, influential British literary critic F.R. Leavis delivered a lecture called *Two Cultures? The Significance of C.P. Snow*. Leavis attacked Snow's thesis, as well as his qualifications. Leavis's overall dispute with Snow hinged on the fact that "C.P Snow could have been taken as an authority only in an age that lacked an educated people" (Bilan 46). Others have attacked Snow's ideas, such as modern-day evolutionary biologist Steven Jay Gould, who goes as far as to say Snow's argument created more fences and barriers between the two cultures than removed them. Social commentator Roger Kimball attacked Snow's argument on the basis that Snow used "literary intellectual" interchangeably with "traditional culture". Granted, some of the terms Snow used may be outdated or vague, but terms and definitions are not stable entities. Vocabulary and academic jargon are instead dynamic and fluid variables that are constantly undergoing shifts and changes in academia. Therefore, for consistency sake Snow's preliminary terms for the scientific and literary intellectual cultures will be used so accordingly science culture is all physical and theoretical scientists and literary intellectuals are artists, novelists, poets, etc. The defining of terms should not take away from Snow's core idea. The crux of Snow's argument is to bring two halves of a whole together so the world's problems can be solved more effectively.

While the two cultures have greatly evolved over the past fifty-two years, the ignorance between disciplines is still very much the same. Snow's essay "figures as a transformative moment in the historical tradition discussing the arts and the sciences"

(Ortolano 27). Overall, the common consensus decrees that free and open debate is the first step to change, and Snow's perceptive insight is what led to the evaluation of these two disciplines.

### Why Does The Debate Matter Now

In Unscientific America, Mooney claims that people have a disconnect with science when it comes to making decisions about how to live their lives, what policies to vote on, what to spend their money on, and how to improve their lifestyles. Mooney makes some stunning conclusions that put this problem into perspective:

“The U.S features a massive infrastructure for science, supported by well over \$100 billion annually.... And yet today this country is also home to a populace that, to an alarming extent, ignores scientific advances or outright rejects scientific principles. A distressingly large amount of Americans refuse to accept the fact or the theory of evolution, the scientifically undisputed explanation of the origin of our species and the diversity of life on Earth. An influential sector of the populace is in dangerous retreat from the standard use of childhood vaccinations” (Mooney 3).

These statements are alarming considering the number of scientists we have in this country whose research is directly related to these matters and affect us all. As a result, the communication viaduct has been blocked somewhere and it needs to be fixed for everyone's well being. Matt Ford, author of the article, “Successful Science Communication: A Case Study” agrees with Mooney and adds that effective science communication is badly needed and its not just the public's fault. The scientists need to “get off of their ivory tower” and find a way to talk to a non-scientific audience (Ford 1).

Ford and Mooney are not only calling the public scientifically illiterate but are calling the scientists' public communication inept.

Science communication vehicles have manifested in different forms including the Internet and science blogs. Science blogs are a form of public communication that, “according to the National Science Foundation, now ranks second only to television among leading sources of information about science for the average citizen” (Mooney 111). Youtube and other video sharing sites are becoming more and more popular with the growing “digital boom”. People are now used to seeing video connected to written word. For example, most Biology, Chemistry, or Physics book purchased since 2004 includes a DVD ROM with videos and interactive teaching tools that are designed to enhance your learning. The “narrowing of the gap between the two cultures” challenge can take advantage of this digital boom and people's ever-growing comfort with film and technology bringing into play the personal science film.

A personal science film utilizes the techniques of a personal essay and science documentary in order to reach its goals which are to teach scientific content, spark an audience's curiosity and interest enough in a science concept that they can do further research on their own, use personal and casual language to teach these concepts, and make science seem less intimidating and more approachable. The aesthetic and broad appeal of film combined with the teaching of scientific fact has the potential to make a scientifically well informed public who will become more comfortable and understanding of science topics.

The personal science documentary genre needs to exist because, as Jonah Lehrer, author of *The Future of Science...Is Art*, states, the “current constraints of science make it clear that the breach between our two cultures is not merely an academic problem that stifles conversation at cocktail parties. Rather, it is a practical problem, and it holds back science’s theories. If we want answers to our most essential questions, then we will need to bridge our cultural divide. By heeding the wisdom of the arts, science can gain the kinds of new insights and perspectives that are the seeds of scientific progress” (Lehrer 2). Scientific progress is a necessity for a civilization that wants to survive and evolve. The two worlds of art and science are not truly separate, but, upon closer examination, merely two halves of a whole that, when brought together, create a complete tableau of human existence. Both Science and Art dissect life but they do it in different ways. When the two cultures are reunited, they can create something beautiful, like the electron cloud model, a complete mapping of the human brain, or a well-done personal science documentary.

## CROSS POLLINATION BETWEEN ART AND SCIENCE

A Symbiotic Relationship

The personal science documentary is not the only medium where the separate cultures of science and art have been brought together to find common goals that benefit both cultures. In his article, Jonah Lehrer discusses how the sciences can benefit from the arts and gives examples of how the artists have helped scientists in the past. For example, Niels Bohr, a physicist in the 1920's, was trying to rethink the structure of an atom. The classical model was that electrons orbit the nucleus in nice elliptical arcs much like the planets orbit our sun. However, Bohr knew science needed a new way of thinking about the path of electrons after studying the radiation electrons emitted. Bohr was fascinated by Cubist paintings and after studying both electrons and Picasso, Bohr discovered that, "electrons weren't like little planets at all. Instead they were like one of Picasso's deconstructed guitars, a blur of brushstrokes that only made sense once you stared at it. The art that looked so strange was actually telling the truth" (Lehrer 1). Bohr's electron cloud model is the model taught in schools today. This example of art affecting science shows how the supposed "two culture" divide and incomprehension can be overcome and narrowed if a person from either side just takes an interest and really opens their mind to what the other world can offer.

Film, science, and literary intellectuals came together in an interview on an April 8<sup>th</sup>, 2011 podcast of NPR's Science Friday. The title of the podcast is called "Connecting Science and Art". The three men contributing to the interview with NPR's Ira Flatow are

Werner Herzog, a filmmaker, Cormac McCarthy, a novelist, and Lawrence Krauss, a professor and physicist at Arizona State University. This interview is a revealing one about what people of different disciplines think of each other fifty-two years after C.P. Snow's essay was written. These men discuss each other's work, how they are influenced by each other, and their views of the world. In this particular section below, Ira Flatow and Krauss discuss Herzog's newest documentary, Cave of Forgotten Dreams.

FLATOW: Do you think when you bring scientists and artists and writers together, they actually inspire each other, give each other ideas?

Prof. KRAUSS: Well, these two gentlemen [Herzog and McCarthy] have inspired me for many years in many different ways. So there's no doubt about it. I can say I'm inspired. They can speak for themselves.

FLATOW: And you [referring to Herzog], as a filmmaker, by making a documentary [Cave of Forgotten Dreams] or showing how [moving stones in prehistoric times] could actually be done without the need for aliens, can influence a large public that might not listen to scientists speak about it, because your -through film.

Prof. KRAUSS: Yeah, I just jump in. I think that's the point. I think the public is intimidated by science, but they love great books and great film. And to the extent that those can in some sense lead people to think about those questions in a realistic way, that's great.

These men bring up a very valid point about science and art which the personal science documentary is trying to overcome. People are intimidated by science, but Professor Krauss, in particular, said that films and books can lead people to think about questions in a realistic way. The "third culture" that Snow referred to and said was necessary in order to bridge the gap is represented in what Professor Krauss discussed. If



a film or book with scientific content is so interesting it will spark the curiosity of a non-scientists and they will go do research on their own on the computer or take a class and then they will become more and more comfortable with the scientific concepts which will lead them to communicate that to others. Personal science documentaries are a way to create that “third culture” of curious non-scientists.

Another example of the two cultures crossing paths is Ned Kahn, an artist who tries to capture natural phenomenon with sculptures. He was a botany major in college but when he came across the Exploratorium, a San Francisco based museum that combines science and art in interactive exhibits, and he quickly changed paths. His portfolio is divided into categories such as sand, wind, fire, light, water, and fog and each of his sculptures capture a natural phenomenon. His artist statement is

“The confluence of science and art has fascinated me throughout my career. For the last twenty years, I have developed a body of work inspired by atmospheric physics, geology, astronomy and fluid motion. I strive to create artworks that enable viewers to observe and interact with natural processes.” (Kahn).

Interactive science art is not only a great example of how to bring science and art together but how to make the public interact with science. This style of hands-on art can also develop that third culture of curious non-scientists, although it does not provide as much depth of knowledge and scientific content as a personal science film can produce.

Mapping and modeling the human mind is something neuroscience has tried to do for several decades, yet there are still many mysteries left to solve. Jonah Lehrer of Seed Magazine says, “until science sees the brain from a more holistic perspective—and such a perspective might require the artistic imagination—our scientific theories will be

detached from the way we see ourselves” (Lehrer 5). Lehrer gives us yet another example where science reaches its limitations and needs to look outside the box to answer its never-ending questions. Vladimir Nabokov, the novelist and lepidopterist, once said, “The greater one’s knowledge of science, the deeper the sense of mystery.” This statement means that when you come across yet another mystery you need to look at another way of doing something in order to solve that mystery, and art has successfully been that “other way”. Science is all about figuring out why something happens or how something works, while art is about dissecting complex, abstract ideas to make sense of them in your own way. These are actually the same goals.

Science is full of complex and abstract ideas such as “how does my brain send the message to my arm to wave?” or “how do involuntary actions work” or “how does my body know what is foreign and what is not and what happens when that system is broken?” Art is about visualizing your thoughts on why something is the way it is. Scientific concepts cannot always be explained with words alone and sometimes they need to be drawn or acted out, or employ the use of metaphors. The reason science lends itself so well to film is because film is a place where people can work out these abstract ideas and thoughts, whatever they may be, in a visual way that uses graphics, metaphors, re-enactments, and imagination. It is possible to use the best that film has to offer and the best that science has to offer in the personal science documentary.

Early scientific films were prime examples of how science and art work together to create and uncover truths in the world. Scientists first used cameras as research tools to do time-lapse cinematography to look at processes that were too slow and small to watch

in real time. The camera was the perfect tool for scientists because, “the medium has a specific analytical habit of isolation and focus which foster the interpenetration of art and science.” (Landecker 4). Both art and science benefited and learned something new about how things could be from these simple films that featured the movement of a leukocyte and one cannot say which field contributes more or is more important. This is a perfect example of why film is the intersection of science and art. These early films by the scientists, Jean Comandon and Alexis Carrel, were just as much the building blocks of the personal science film as is the personal essay.

## THE PERSONAL ESSAY AND HOW IT CAN

## HELP THE PERSONAL SCIENCE FILM

Just as a personal essay is less intimidating than a formal essay so is a personal science film less intimidating than a formal science film. The literary intellectuals and the scientists, while pitted against each other by C.P Snow, are actually using very similar techniques. If a person is looking to make a personal science documentary film then they would benefit by looking into the past to find some inspiration from the literary intellectuals.

The personal essay has been around since the days of Michel Montaigne in the 16<sup>th</sup> century, while science films have only been around since the late 1890's and the term documentary wasn't coined till 1926. Phillip Lopate defines the informal essay as, having a humor, a personal element, an unconventional form, structure, and theme, and may even be incomplete in thought (Lopate xxiv). Francis Bacon, an acknowledged fountainhead of the essay believed in the empirical inductive method which proved useful in the development of the physical sciences and is also the reason the essay is often associated with the experimental method, "One would like to think that the personal essay represents a kind of basic research on the self, in ways that are allied with science and philosophy" (Lopate xlii). If the early essayists took from science back in the 16<sup>th</sup> and 17<sup>th</sup> century then why can't science take from the essay in the 21<sup>st</sup>? Some tips that scientists can take from the personal essayist is, "the unashamed subjectivity of the personal essay makes it less suspect in a mental climate in which people have learned to mistrust the value free, objective claims of scholarship and science. It seems to lay bare

its process as it goes along”(Lopate xliii). When a filmmaker “lays bare its process” it is like a politician being transparent. People tend to trust the politician more and feel more connected because they do not feel deceived in anyway and believe they are aware of everything that is going on.

Montaigne described the essay as a heroic journey into the unknown where there may not be an answer to the questions asked or even anything to find (Lopate xli). This is exactly the way one begins a scientific experiment, which is the basis of the scientific method created by Frances Bacon in the 16<sup>th</sup> century. In science, a question is posed then an educated hypothesis is made. An experiment is then designed to answer the question even though the experimenter is not sure what they will find or if there is anything to find much like when an essayist embarks on an essay topic. This is also just like the documentary production method. You write a proposal with a basic outline of what you want to create but then as the filming process progresses you often get into unknown areas that take you in an opposite but often intriguing direction. The research and production techniques of an essay, experiment, and film all seem to be similar enough that using each of their strengths would make a very strong and compelling personal science documentary that had great artistic merit, non-diluted scientific content, and a personal connection with the audience that will make them watch and trust the film.

#### Examples of Personal Science Films

People are often skeptical of the science film that takes a complete objective point of view because it is not allowing the audience to think for themselves. Phillip Lopate

offers a suggestion that addresses this problem, “Self reflection is key to an personal essay. Skeptical yet gyroscopically poised, undeceived but finally tolerant of flaws and inconsistencies, this mode of being suits the modern existential situation”(Lopate xlv). This suggestion is very easy to include into a filmmaking style because self-reflexive films are already a genre of film. A self-reflexive film that makes “its process bare” will help the audience connect to the topics and the narrator because it will feel more genuine and personal. Scientists are often uncomfortable with adding personal elements to a film because they may think it makes them and what they are saying less creditable. However, films made with no personal effects to them at all turn out like The Social Behavior of The Laughing Gull and The Social Behavior of The Rhesus Monkey which are educational lectures on film that didn’t communicate to a larger audience any scientific facts or help narrow the gap between science and art. I believe the personal science film, which combines the intimate aspects of a personal essay with the important concepts of a science documentary, will make the audience more receptive and less intimidated with the science topic being relayed. When an audience has a genuine person relating to the audience on a personal level with scientific topics then they are more likely to be entertained and engaged and there are great examples of how one can be personal, lay your process bare, and relay complicated scientific concepts to a non-scientific community.

Planet Earth was a huge success in the documentary world because of its beautiful cinematography yet is not what I call a personal science film. However, the Planet Earth Diaries: the Filmmakers Story Behind the Scenes where you get to see the filmmaker’s

story behind Planet Earth episodes was made available in the complete DVD set. I find it funny that whenever I mention Planet Earth people always seem to remember the guy who spent hours in a hideout trying to capture the birds of paradise mating behavior on film or the other guy who missed Christmas with his family to film the elusive snow leopard. These two stories are not in the Planet Earth documentary series itself but rather in the extra Planet Earth Diaries.

This appendix piece to the epically beautiful Planet Earth series begins with shots from the original scene and then goes into an introduction by Alastair Fothergill, the series producer, who tells the audience that he will show the Discovery viewer's favorite scenes and then how those productions crews got those amazing shots. The viewer gets to see the amazing and rare footage of the wild dog chase, white tipped tiger sharks, bats in a Borneo cave, lioness's hunting elephants once again to please their aesthetic needs and then they get a behind the scenes story of the filmmaker to fulfill their personal connection needs.

One of the best examples of seeing the human side of natural history filmmaking is the birds of paradise diary. BBC cameraman, Paul Stewart, is well known for being able to sit for hours in a hide and patiently wait for the birds to show up. Yet this particular shoot for Planet Earth made even him go a little crazy. He talks about the song, "My Bird of Paradise", and how he doesn't even like it but that it is involuntarily stuck in his head. During one shoot saw the birds mating, but it was all from the wrong angle. He had to wait eight hours until he could move the blind but all his patience and

hard work finally paid off eight weeks later when he captured a male showing mating behavior to a female.

The idea of putting the personal filmmaker's story with the planet earth episodes, which is known for having no human presence, is an interesting one that could be used as another solution to making the science film personal. The diaries overcame the hidden processes of creation that make some suspicious because it laid bare its process as it went along.

Werner Herzog's film, Encounters at the End of the World, is an excellent manifestation of Lopate's suggestion for self-reflection as a way to appeal to the "modern existential situation." Lopate said self-reflection is skeptical, undeceived, and tolerant of flaws and inconsistencies. Herzog's self-reflexive lens fits these descriptors in most of his films but they are clearly shown in Encounters at the End of the World. For example, this film is about the people who live in the McMurdo Station in Antarctica where Herzog says to the audience this is not going to be the typical science documentary about "fluffy penguins." This film contains science content simply because of the nature of the location Herzog chose. McMurdo Station is a U.S science facility where scientists are conducting research for several experiments yet Herzog's unique lens makes him ask questions like "why don't apes ride zebras?"

Herzog's thoughts and questions while at the McMurdo station are more artistic in scope than scientific, and hopefully non-scientists watching the film will connect to Herzog because his questions and thoughts mimic their own. Ultimately, this personal connection to a science film will spark a non-scientific viewer's interest in a scientific



concept to go beyond the science film and go to the computer to research on their own; embracing another world they never thought they were interested in.

A good personal science documentary, like Herzog's, will begin to break down that barrier of intimidation of science so that the non-science enthusiasts are more open and understanding to this world that is crucial to their lives. Once the barrier is broken then the overall goal would be then for everyone to have similar level of scientific knowledge so that when a certain policy or law concerning science and technology advancement is being voted on people are not against it just because they do not understand it.

Another film that overcomes the obstacles of being personally engaging, full of scientific content, and laying its process bare is, Death by Design by Peter Friedman and Jean-Francois Brunet. This film is about programmed cell death, or apoptosis, a very complex cellular function and scientific concept but the personal essay-like structure and the style of the film makes this topic very tangible, human, and relatable. About forty minutes into the film you get some reflexive moments that "lay the film's process bare". The scene is a group of scientists talking about how the body produces a lot of cells but only a few cells survive then, the film cuts to an editing room where we watch the editor of the film watching and cutting up the scientists saying what they just said a few times to get the best sequence.

The most personal scenes are the ones with Rita Levi Montalcini, a female Jewish scientist from Turin during WWII. She was the first to have found the connection between nerve growth factor and cell death and did it in her room since she was Jewish

and therefore not allowed in laboratories during WWII. Ms. Montalcini has a twin sister who creates sculptures that portray scientific concepts. Rita believes her scientific work and her sister's art are similar, "I work in a more artistic mode than a scientific. It's what science and art have in common: intuition. For example we are twins. We've followed different paths but in a way, my scientific view of the world and her artistic view, are very close." Rita's words echo the goals of a personal science film which is to see science and art as complimentary elements.

The film ends on a shot of cells in a microscope on a jumbo-screen in Times square to get people to realize biology is all around us. This film and those scenes with Rita and her sister are great examples of science content reaching out to humans on a human level. It is engaging to watch both the artistic and the scientific sister grapple with the same concepts but display their findings and conclusions in different forms. This film is not only about a prime example of how science and art can work together to bridge the cultural gap but also is an example of how a film can be both personal and engaging to a broad audience and also teach a complex scientific concept to audience of diverse levels of scientific knowledge.

In an interview with Cindy Stillwell, filmmaker and creator of Hybrid Media, her most recent film about Sandhill Cranes is discussed. It is called Mating for Life and is described as a "part first person essay, part nature film" which I believe falls into the category of a personal science film. It fulfills both the personal and scientific requirements of the personal science film genre. The film's Biology element focuses around the migration and mating behavior of Sandhill Cranes in which all the facts are

verified by crane biology consultant, Paul Tebbel. The other half of the film is the personal half where she focuses on her reflections of turning forty, mating for life, and the human search for meaning. When asked about the style of her film she said this:

STILLWELL: I was trying to make a film that was part nature film and part first person essay. I wondered what would happen if you tried to fuse these two approaches, so that the viewer can get to know my perspective and ride along with me as I take on these larger midlife type questions. At the same time, I find Nature so soothing, in this case these ancient birds that just keep adapting and surviving. It relaxes me and I thought it might be interesting to present the cranes and Nature in general, in this way, as a counter point to my questions. Non-human beings that make their own way in the world over the eons – we share this place with them and they have things to teach us if we pay attention. Not in a fact-based way, but just in how they are, how they adapt, and live within their environment.

Stillwell is a member of the third culture because she was a curious non-scientist who became involved in a scientific topic and researched it on her own and communicated it to others in her own way . The goal of this genre is not always to relay facts so that people can become experts in whatever topic is being discussed but it is more about sparking an interest and inspiring conversations about scientific topics that are often intimidating for people. The facts in these films should still be true and not a “Hollywoodized” version of the facts so I admired Stillwell when she said she would have not felt comfortable writing the movie about Sandhill Cranes without having a crane biologist consultant who could double check her facts. Her ending comment in the interview was about how making this kind of film has a lot of abstract complexities and highlights some potential obstacles of the personal science film, “I am not sure I did it

and I am also not sure that it was a good experiment: to endeavor to make a first person essay / Nature film hybrid. Does it work? I am not sure yet". (Stillwell) Balancing scientific facts, creating a sound narrative, and adding personal elements can be difficult during any filmmaking process but the genre of personal science films, in particular, has these obstacles. However, I strongly believe it is worth the struggle, and with a willing and worthy filmmaker like Stillwell, personal science films will help narrow the gap between the two cultures C.P Snow thought were so incomprehensible to each other.

## CONCLUSION

There are some great examples of a personal science film out there that appeal to a broad audience of scientists and non-scientists yet, they are scarce. The personal science documentary will have to take advantage of the rise of technological advancements and the popularity of social media in order to increase its exposure and prominence. Sites such as YouTube, Facebook, and Vimeo will be the platform where the personal science films will be seen. If people can produce their own films about science topics and comment on others films then they are more likely to not see science and art as competing disciplines but as complimentary to each other. Examples of past projects where art and science came together showed how it is possible to fuse these “two cultures” together. Belief in a progressive and evolving civilization showed why the public should not be scientific illiterate. Though art is just as important as science to creating a full life, I believe less science than art, is being communicated to the public and is the reason why the personal science film is needed more in order to bridge the cultural gap than a film that focuses on artistic concepts. However, a film is an artistic mode of expression so both disciplines are being represented in that medium. During C.P Snow’s time the ability to learn a broad spectrum of topics, create educational media, or interact with a broad and diverse population was very limited due to technological barriers but because of all the smart phones, internet access, Xbox, etc people are able to do all of the above with ease and seem to really be engaging with all the modes of communication. C.P Snow could have never imagined a smart phone, or a computer that could be carried in a purse but he did predict and pleaded for a place where two cultures

could communicate; and while it may seem futuristic to say that place is actually not a physical place but a digital cloud, at least the conversation has finally begun and materialize in some form. This controversial conversation that Snow began more than 50 years ago, about the two different cultures of science and art is not the first and it will not be the last but any conversation that gets the two “cultures” to communicate and collaborate is one that will aid in making society a more well-rounded society that can create solutions to current world problems and make it better existence for all.

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