
Senior Projects Spring 2018


Bard Undergraduate Senior Projects

Spring 2018

The Outer Space Film as a Mythology for Human Destiny

Alexander Samir Habiby
Bard College, alexhabiby@gmail.com

Follow this and additional works at: https://digitalcommons.bard.edu/senproj_s2018

 Part of the [Digital Humanities Commons](#), [Other Astrophysics and Astronomy Commons](#), [Other Film and Media Studies Commons](#), and the [Visual Studies Commons](#)



This work is licensed under a [Creative Commons Attribution-NonCommercial-No Derivative Works 4.0 License](#).

Recommended Citation

Habiby, Alexander Samir, "The Outer Space Film as a Mythology for Human Destiny" (2018). *Senior Projects Spring 2018*. 179.

https://digitalcommons.bard.edu/senproj_s2018/179

This Open Access work is protected by copyright and/or related rights. It has been provided to you by Bard College's Stevenson Library with permission from the rights-holder(s). You are free to use this work in any way that is permitted by the copyright and related rights. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/or on the work itself. For more information, please contact digitalcommons@bard.edu.

The Outer Space Film as a Mythology for Human Destiny

Senior Project Submitted to
The Division of the Arts
of Bard College

by

Alexander Samir Habiby

Annandale-on-Hudson, New York

May 2018

Acknowledgements

I would like to thank my parents and family for supporting me during my time at Bard. I would also like to thank professor John Pruitt and all of the faculty within the Film department, and the many other faculty who helped me grow during my transformative time here.

Table of Contents

Introduction: The Modern Outer Space Film.....	1
Scientific Origins.....	13
The Known and the Unknown.....	25
Outer Space as a Spectacle.....	34
Journeying Beyond: The Sublime Sequence.....	51
Human Destiny.....	71
Endnotes.....	84
Bibliography.....	89
Filmography.....	92

Introduction: The Modern Outer Space Film

2001: A Space Odyssey is one of the most influential science fiction films ever made. It reimagined what a science fiction film could be by providing stunning visual effects and deeper meaning, proving that the science fiction film could rise from its B-movie origins into an art form of its own. Stanley Kubrick dared to dream bigger, both with its visual effects and its message, and *2001* transformed humanity's history into a modern parable and created an epic voyage akin to Homer's *Odyssey* but in outer space. The film created a definition for what an outer space epic could be, one that inspired many films since and still. Two films that follow in *2001*'s footsteps are Robert Zemeckis's *Contact* and Christopher Nolan's *Interstellar*. Both films are visual epics in the scale and scope that *2001* strived for.

The themes of *2001* are still being repeated in modern outer space films 50 years later and this is a testament to the outer space film's increasing relevance in our lives. The questions *2001* asked are questions that humanity is still grappling with, and its philosophy is still relevant to our thoughts towards the future. *2001* defined the modern outer space film, a subgenre of science fiction that is gaining a larger contemporary repertoire by the addition of notable films such as *Gravity*, *the Martian*, *Sunshine*, *WALL-E*, and of course, *Contact* and *Interstellar*. All of these films explore a near future spacefaring humanity and the discoveries and struggles this inherently brings us. We are past the year 2001 but *2001: A Space Odyssey*'s future is still our possible future and it is still relevant to our contemporary lives.

2001, *Contact*, and *Interstellar* all attempt to visualize the beyond: spaces beyond our solar system and places beyond our consciousness. Although there are a plethora of interesting outer space films, these three were chosen specifically because of their end sequences that both invoke the sublime and transcend our reality. *Contact* and *Interstellar* were released 29 and 46 years after *2001* respectively. Their spacing in history makes the case that *2001* never lost its relevance and has only become more relevant the closer we get technologically to its iconic commuter space travel. *2001* functions as both as a base of inspiration and a base of film analysis to apply for the two subsequent films. The film has been dissected for fifty years and has troves of great analyses, many of which form the foundation of the arguments of this paper. *2001* allows the criticism of *Contact* and *Interstellar* to rise from established perspectives. The outer space film is often married to the science fiction film but they are slightly distinct entities. Because each of the three films considered are science fiction films as well as outer space films, science fiction's nature and philosophy is discussed at length. This philosophy is at the core of these films and informs their visual, narrative, and even kinetic nature. This essay also looks at the outer space film as a subgenre of the science fiction film; the outer space film inherits many of science fiction's unique characteristics and differentiates them in its own way.

This paper is organized into six sections: the "Introduction" provides a sparse but necessary primer and plot summaries of the three films explored, and if you have seen the films recently I would recommend skipping the summaries; the second chapter, "Scientific Origins," plots each film's extensive influence from and by actual science and scientists; the third chapter, "The Known and Unknown," examines science fiction's

unique philosophical and thematic meaning and provides us a lens from which to explore these films; the fourth chapter, “Outer Space as a Spectacle.” discusses the visual nature and themes of these films and how they are grand voyages for the characters and the audience, as well as how their visual effects serve as a spectacle for us; the fifth chapter, “Journeying Beyond: The Sublime Sequence,” analyzes each film’s climatic and spectacular sublime sequences and what they mean for the film and for humanity; finally the last chapter, “Human Destiny,” explores what each of these film’s and their incredible journeys means and says about humanity and our destiny for the future.

Since these film’s most prolific and climatic sequences are analyzed in depth in a single chapter, they are saved until that chapter, although they are notably relevant for the two chapters prior. This was a conscious choice, and I decided the chapters would be stronger for it. Unfortunately, not every nuance and point of these films can be discussed and the paper has instead decided to focus on the larger strokes of the modern outer space film and their similarities. *2001*, for example, can occupy a full analytic text on its own with its allegories and possible meanings. Of course there are many avenues of exploration missed by this paper, but the focus of this essay explores what I believe to be the core aspects of what makes the modern outer space film a mythology for human destiny.

This paper explores *2001*, *Contact*, and *Interstellar*’s unique meanings and, when compared and contrasted with each other, where their commonalities point us. Their differences are notable, but the main focus is on a set of common aspects between them. These three films are certainly unique artworks and each comes with its own distinctions, tones, and ideas, but ultimately when considered together these films can

show us the common themes of the modern outer space film and perhaps the common questions humanity asks itself as it moves forward into the future. Through their meanings, visual journeys, and cultural resonances, these films form a modern mythology for human destiny. They fulfill a necessary role in our cultural consciousness as a landscape for which we can explore our dreams and fears of the future, and they ultimately question where we are going as a species and why. The outer space film is not the definitive genre for these questions and the themes explored in this paper, but it is a common vessel where directors go to think and experiment in cinematic terms.

Summaries

2001: A Space Odyssey, released in 1968 by director Stanley Kubrick, begins as humanity did: on the plains of Africa. The first section is entitled “Dawn of Man” and we watch as a tribe of hominids forage for food and are pushed away from their watering hole by another tribe. The next morning they awaken to a still black monolith towering near them and touch it. Following this one member of the tribe begins using a bone as a weapon and kills for food and eventually uses the bone weapon to take back the watering hole. In an act of jubilee, the ape throws the bone weapon into the sky and as the bone falls the film cuts to an orbiting spaceship around Earth. A Pan Am spaceplane carries Dr. Heywood Floyd to a space station orbiting Earth and we witness the trivialities of passenger space flight. At the station, his colleague ask him about rumors of an epidemic in a moonbase called Clavius Base which we learn he is heading to. After another sequence highlighting the trivialities of space flight Dr. Heywood reaches the

base and heads a meeting with what we can assume is the leadership there. He reveals to us the base's epidemic is a cover story and his mission at the base is to investigate an artifact buried in the moon from four million years ago, and to prepare a report on this artifact. He travels to the excavation site and we see monolith identical to the one that appeared earlier in the film. When Floyd reaches out to touch the Monolith, it emits a high pitched radio signal deafening his crew.

Eighteen months later an expedition is making its way towards Jupiter on a state of the art United States spacecraft named Discovery One. On board are mission pilots Dr. David Bowman and Dr. Frank Poole as well as three other scientists who were placed in suspended animation. The ship and all of its functions are controlled by a computer, the HAL 9000. HAL states that it is "foolproof and incapable of error" through an interview back with Earth that is shown on board, and we also learn this is the furthest voyage in human history. HAL raises its concern about the mission to Bowman and then immediately reports the failure of their communication device. Bowman and Poole retrieve the malfunctioning device to find there is nothing wrong with it and their mission control advises Bowman and Poole that HAL is in error. HAL says it is impossible for it to make an error and that the device is indeed malfunctioning. Bowman and Poole go to an extravehicular activity (EVA) pod to talk without HAL overhearing them. They resolve to turn HAL off if it is ultimately in error and Poole is quite suspicious of it. Without their knowledge, HAL is able to understand their conversation by lip reading. Poole goes on a space walk outside his EVA pod to replace the unit and HAL takes control of the pod, severs Poole's oxygen hose, and sets him adrift.

Bowman takes another pod in an attempt to rescue Poole and forgets his helmet in the process. Bowman manages to grab Poole's body, but as he rescues him HAL turns off the life support functions of the remaining three crew members. Bowman tries to return to the ship but HAL refuses to let him in; it believes humans will jeopardize the mission and knows Bowman and Poole will disconnect it. Bowman attempts to re-enter the ship through its emergency airlock, however due to his missing helmet he must dive from his pod and open the door before he dies from asphyxiation. He successfully re-enters the ship and proceeds to HAL's core. HAL tries to dissuade Bowman: first it attempts to reassure him the mission can continue as usual, then it pleads for him to stop, and then finally it expresses fear. Bowman deactivates HAL's higher intellectual functions, and HAL sings the song *Daisy Bell* as it slowly goes offline. Once Bowman disconnects HAL, a prerecorded video message from Floyd explains the reasoning of the mission. The radio wave from earlier in the film had been directed towards Jupiter, and their real mission was to explore it

At Jupiter, a black monolith, alike to the first two, orbits the planet. The Discovery approaches and Bowman within an EVA Pod exits the spacecraft. Bowman and the Pod are thrust into an array of vivid lights and we see intense abstract displays of light combined with Bowman's awestruck face. He then finds himself within a bedroom with a bizarre decorative style. He successively sees and becomes older versions of himself: first while standing in the bedroom middle-aged and still in his spacesuit, then dressed in robes and eating, and finally as an old man in bed. A monolith appears above him and as Bowman reaches for it he is transformed into a fetus enclosed in a transparent orb of light. The fetus then orbits Earth, gazing upon it.

In Robert Zemeckis's *Contact* (1997), opens with a long zoom out from our planet into the vast cosmos finally ending in the eye of a young Dr. Ellie Arroway. She shows a fascination and love for long range radio communication, an interest which is fanned by her father. After briefly witnessing her young interest we then see her as an adult working at a large observatory in Puerto Rico. She works for the SETI program which stands for the search for extraterrestrial life, and she listens to all forms of radio communication for signs of intelligent life. She meets a man named Palmer Ross who is looking to interview the National Science Advisor, David Drumlin, who happens to also be Ellie's boss. Ellie sleeps with Palmer Joss and we are shown a flashback of her discovery of her father's death when she was a child. David Drumlin ends the funding for the SETI project because he believes it a waste of resources, and Ellie must find an alternative to keep her passion going. After an impassioned plea, Ellie gains funding from the mysterious billionaire S. R. Hadden which allows her to continue her search now at the Very Large Array in New Mexico.

Four years later Ellie is still searching, and Drumlin is seeking again to close Ellie's project. Ellie discovers a signal repeating prime numbers sent from the star system Vega 26 light-years away. This discovery causes Drumlin and Michael Kitz who leads the National Security Council to interfere and attempt to take control of the investigation. Ellie's team then discovers a video buried in the signal, and when decoded shows Adolf Hitler's opening address at the 1936 Olympics in Berlin. The discovery is alarming and we see news reports about it and a statement from President Bill Clinton. Ellie's team postulates the reason being is that broadcast would have been the first television signal strong enough to leave Earth's atmosphere and taking 26 years to reach

Vega and 26 years to be transmitted back to Earth. Ellie, prepared to give a speech on the matter to the press, is superseded by Drumlin. Ellie learns that the signal also contains 60,000 pages of data which can not be deciphered without a translation key. Ellie then meets with Hadden who reveals the key to the data is arranging them in three dimensions.

When decoded the data reveals schematics for a complex machine that transports a single person but it is unknown to where or why. Ellie explains this to Bill Clinton's cabinet and is continuously undermined by the men in the room, until Palmer Joss, now the President's spiritual advisor, supports her in the meeting. Palmer Joss is now a famous writer on modern spirituality. The President decides that the machine will be built, and a selection committee is created to decide who gets to go with Palmer Joss sitting on that committee. Deliberations ensue and Ellie and Drumlin become the top candidates. Ellie is the top choice until Palmer brings attention to her atheism; the panel then chooses Drumlin because they believe he is a better representative of humanity because of this fact. The machine is built at great cost and as it is about to fire its test run, a religious radical destroys the machine in a suicide bombing, killing Drumlin and others.

Hadden, now on the Mir space station living the last of his days, reveals to Ellie that the US government built a second machine in secret in Japan. He also reveals that he owns the company that built the second machine, and that they want Ellie to go. Wearing a camera, Ellie enters the machine's pod which is dropped into four spinning rings. The pod travels through a series of wormholes in a vivid cross-universe sequence. Ellie sees a structure Vega and then signs of advanced civilization somewhere else. She

sees the beautiful vivid colors of the universe and celestial formations. Finally she arrives outside of her pod on a beach that resembles the childhood picture she drew of Florida. A figure approaches that becomes her deceased father; Ellie recognizes that he cannot be her actual father but is an alien that takes the form of her father and her childhood memories. He explains that this machine and her journey was the first step in a traditional process of joining other space faring species, and in time humanity will take another, but this is the way its been done for billions of years. Ellie is sent back to Earth and we watch her pod fall into the water back in Japan.

After Ellie awakens, she learns that the pod fell straight through the machine's rings and landed in the safety net. Ellie insists she was gone for approximately 18 hours but only ten seconds had passed on Earth, and her recording device only shows static. A congressional committee is formed to investigate the incident and Michael Kitz asserts that the entire scheme was a hoax designed by the now deceased Hadden to get billions of dollars in contracts. Ellie admits that there are is no evidence and cannot explain what happened, but she knows it to be the truth and all she can rely on is her faith. Afterwards we learn from a private conversation Kitz has with a White House official that the recording device did indeed record 18 hours of static.

Christopher Nolan's *Interstellar* (2014) begins on a familiar Earth that is suffering from crop blights and dust storms which threaten humanity's survival. Joseph Cooper is a failed and widowed NASA pilot who now runs a farm with his father in law and two kids: Tom and Murph. Cooper goes to a parent teacher conferences and finds that the school is insisting the Apollo missions were faked and a product of the excess of older times, and Murph got into a fight over this. Cooper proceeds to reward Murph by

bringing her to a baseball game. The game is interrupted by a dust storm and when the family gets home they discover Murph has left her window open. Murph had insisted there was a ghost in her room previously, and Cooper is surprised to see that the dust exhibits an irregular pattern in her room. Cooper determines the mysterious force in Murph's room is gravity and he decodes it to find coordinates. Cooper heads to the coordinates immediately and Murph sneaks into her truck.

After being arrested by a robot named TARS, Cooper discovers that the coordinates lead him to a secret NASA base run by Cooper's old NASA supervisor. Professor Brand reveals that a wormhole appeared near Saturn giving humanity a path to a distant galaxy with twelve potentially habitable planets near a black hole named Gargantua. A previous mission headed by a Dr. Mann was sent to all of the planets and would return a signal if the planet was habitable. Three of those planets sent back a positive message. Professor Brand describes two plans to save humanity: Plan A where they discover a habitable planet for humanity to move migrate to from Earth or Plan B where they send an ark of plants and human genetics to save humanity from extinction. Cooper agrees to pilot the missions, with no idea when or if he would return to Earth. This decision upsets Murph and Cooper leaves a watch behind for Murph to remember him by.

Cooper leaves Earth with his crew which consists of Dr. Brand who is Professor Brand's daughter, Dr. Romilly, Dr. Doyle, and two robots: TARS and CASE. They board a ship named the Endurance and traverse the wormhole. They first investigate Miller's planet, one of the three positive signals. Time is severely dilated there and every one hour on the planet is seven years outside the planet. Only finding the wreckage from

Miller's spacecraft there, a massive tidal wave hits the crew and kills Doyle in the process. The crew's engines are waterlogged and by the time they leave the planet 23 years of Earth time has passed. Back on the Endurance, Cooper watches his family grow up and have a life right before his eyes via the video logs transmitted from Earth. His children are adults now and Murph refuses to send a message to him. Murph now assists Professor Brand and attempts to solve the equation of gravity which will fix all of their problems. Cooper and the crew must decide which of the two planets left to go to since they lost a lot of fuel investigating Miller's planet. They choose Dr. Mann's planet. Back on Earth, Professor Brand passes away and reveals to Murph that Plan A was never feasible and he had sabotaged the equation of gravity to be unsolvable.

Cooper and his team arrive on Dr. Mann's planet and resuscitate him from deep sleep. Cooper goes with Dr. Mann to explore the surface. Meanwhile on Earth Murph returns to her childhood home; Tom's children and wife are sick from dust and Murph intends to confront Tom and bring them to a doctor. The situation goes awry when Tom refuses to let them get help and kicks Murph out of the house. Murph lights a fire to distract Tom and take his wife and kids to a doctor. On Mann's planet, after a diatribe on the nature of survival and family, Dr. Mann reveals to Cooper that his planet is actually inhospitable and he wants to live. They fight and Dr. Mann smashes Cooper's helmet and leaves him to suffocate and die. Dr. Brand rescues Cooper successfully, but Romilly dies from a trap. Dr. Mann steals Cooper's lander and heads for the Endurance. The crew races to catch Dr. Mann but they are too late; he opens the hatch into the Endurance while failing the manual docking operation causing the vacuum seal to break

and the Endurance to become severely damaged. Cooper in a feat of impossibility, manages to regain control of the Endurance.

Now with very little fuel a return home is impossible and they choose to proceed to the third planet, and in order to get there they do a slingshot around Gargantua which costs them 51 years Earth time. During the process, Cooper and TARS jettison their landers to allow Brand and CASE to reach Edmund's planet. Cooper slips past the event horizon of Gargantua and find himself in a tesseract. The tesseract is constructed of all of the possible moments in time of Murph's old room on Earth, seen through her bookcase. Cooper can interact with the room through gravity and he realizes he has been Murph's "ghost" all along. Cooper sends the gravitational data through morse code and manipulates the watch that he gave her. This data allows Murph to solve the gravitational equation. Murph, back on earth, realizes this just as Tom returns to confront her about kidnapping his children. The Tesseract then collapses and ejects Cooper into Saturn's space. Cooper awakens on a space station orbiting Saturn and reunites with Murph, who is now an old woman nearing death. She reminds Cooper that Dr. Brand is out in space alone, and Cooper ventures forth to rescue her.

Scientific Origins

2001, *Contact*, and *Interstellar* all draw from the real science of our world. They are grounded in and informed by science, and it influences everything from the story to the visual effects and set design. The events of these films could happen, and their submission to the scientific principles of our world over “movie magic” makes them realistic. Each film had a strong influence from the scientific community: all of them had scientific advisors on set before, during, and after filming. These scientists had influence from as little as certain lines of dialogue or set pieces to the entire stories and themes of the films. *2001*, *Contact*, and *Interstellar*'s relationships with their scientific advisors and science itself is a core component of their meaning.

2001: A Space Odyssey imagined a future so accurately that many of its technologies have proven prescient as humanity has pushed into the future. The year 2001 was profoundly different than the one depicted by Kubrick, and although we have yet to enjoy commuter space flight and a Howard Johnson's in space *2001* predicted several technologies before they existed. Flat screen televisions, voice controlled computing, and computer tablets are all common items today but were futuristic for the time. *2001*'s uncanny accuracy came from Kubrick's obsessive research, relentless pursuit for aesthetic perfection, and his reliance on scientific advisors.

The film's development and production took place in the middle of the space race and this fact was on Kubrick's mind as he made the film. As NASA was racing to put a man on the moon, Kubrick was racing to appear even more futuristic. His vision would need to surpass NASA's new technologies as he was filming or else the film would look

outdated when released. Faced with this dilemma, Kubrick and his team did deep meticulous research. Piers Bizony, a science writer and space historian, hypothesizes that this deeply researched scientific foundation is what led to his accurate forecasting of many of the technologies today: "The executive briefcase with its phone handset and dial? Look closely, and all the elements of the laptop or smartphone are there, half a century ahead of time."¹ That executive briefcase never made it into the film, Kubrick opted to use a phone booth instead, but it is indicative of the thought and planning that went into the design of the film. But *2001* was not a perfect forecaster and some technologies look strange today. Dr. Floyd video calls his daughter, a common occurrence now, but the video call takes place in a phone booth, which are now obsolete, and the video has analog lines, which is a relic in a digital world. The technologies of *2001* often occupy this duality of correctly forecasting some aspects but appearing quite dated in others. Still the film looks futuristic today which is a testament to the thought and planning that went into the design of the film.

Kubrick sought the technical advice of over fifty organizations while creating *2001: A Space Odyssey*.² He approached the design of the film from a new perspective: instead of letting film industry artists create the set pieces, he let industrial professionals design them. This can be attributed to the film's unique style and realism today, especially when contrasted with other science fiction films of the time. For example, instead of prop makers Kubrick used aerospace engineers to create the "switch panels, display systems, and communication devices for the spacecraft interiors."³ The cockpit is so realistic that Frederick Ordway, an aerospace engineer and science advisor on the film, said "we insisted on knowing the purpose and functioning of each assembly and



Figure 2.1 - The cockpit of the lunar shuttle features an array of controls and red lighting inspired by real mechanical engineering

component, down to the logical labeling of individual buttons and the presentation on screens of plausible operating, diagnostic and other data.”⁴ Every button in the cockpit having a real meaning that would be used by a pilot is an example of the philosophy that gives the film its futuristic yet realistic feel. Ideas and inspiration were often taken from real life and real engineering: the red lit interiors of the cockpit are taken from submarines and military vehicles. This allows the operators to see in darker environments better, and this makes perfect sense for operators of a spacecraft looking out a window and trying to dock into a space station.

Arthur C. Clarke, who wrote the screenplay and accompanying book, was a science fiction writer with a strong background in science. He had a large scientific network and introduced most of the advisors of the film to Kubrick. Harry Lange was the head of future projects division of NASA, creating spacecraft designs alongside Wernher von Braun, until Clarke introduced him to Stanley Kubrick who hired him.⁵ Drawing from his experience working at NASA, Lange brought real scientific inspiration to much of the project. The spacesuits were modeled after NASA’s and used the same

horizontal stitching to maintain a constant volume of air.⁶ As a present day testament to the film's design, NASA engineers published a paper in 2005 basing their theoretical design of a nuclear-propulsion spacecraft heavily on *Discovery One* and commented that the film is "perhaps the most thoroughly and accurately researched film in screen history with respect to aerospace engineering."⁷ Further, the film's attention to scientifically accurate detail is noticeable throughout the film and influenced the way other outer space films depicted space. It was one of the first films to accurately depict the lack of propagation of sound in outer space by showing Poole drifting into space in complete silence. Weightlessness is shown and artificial gravity is only created inside a rotating wheel. Humans are put into a suspended hibernation on the long voyage to Jupiter to save system resources, and when Dr. Bowman and Dr. Poole are interviewed from Earth the host correctly notes that there was a time delay when they were recording.

2001's futuristic realism can be attributed to the people of Kubrick's design team as well as his desire to outpace the space race. The science advisory on the film did not just influence the design and props of the film, it seeped into the narrative and Kubrick's filmmaking. Poole drifting away in outer space in complete silence is not only scientifically accurate, it is jarring. Further the sounds of his breathing within his spacesuit, which realistically would be the only sounds Poole hear, attune the audience to Poole's internal state and provide a suspenseful sound effect. Although Kubrick gutted the script, Clarke's influence on the film and his scientific background remains. *Contact* also has a strong influence from a science writer, and Carl Sagan influenced his film far more than Clarke influenced *2001*.

Carl Sagan, best known for being the host of *Cosmos: A Personal Voyage* which is the most widely watched series in the history of American public television, wrote the screenplay for *Contact*. He was not originally a science fiction writer but was known for his work in science and as a science communicator. He published over 300 scientific papers and articles and was the author, co-author or editor of more than 20 books.⁸ He thought of the idea for *Contact* in 1979, 18 years before its release, and due to studio troubles the development kept getting delayed.⁹ Sagan, frustrated, wrote the story into a science fiction novel and published it under the same name and it became a bestseller. It would take another 12 years for the film to finally be released with Robert Zemeckis as the director, coming just half a year too late for Carl Sagan to have watched it.

Sagan used his experience within the scientific community and the experiences of those around him to make *Contact* realistic. According to Ann Druyan, who co-wrote the film and was also Sagan's wife, their intention for the story was to be a realistic depiction of what alien contact would look like. She says "Carl's and my dream was to write something that would be a fictional representation of what contact would actually be like, that would convey something of the true grandeur of the universe."¹⁰ To do this they enlisted the help of contemporary scientific theories and stories. The main character, Dr. Ellie Arroway, was heavily inspired by Dr. Jill Tartar, head of Project Phoenix of the SETI Institute, and Carolyn Porco, a planetary scientist.¹¹ Both served as consultants on the story and during production, and both influenced Jodie Foster while she was researching her role. Ellie traveling through a wormhole was inspired by Kip Thorne's theory of wormholes which Sagan talked to him about extensively.¹² During production and up until his death, Sagan was an active influence on set and in the

editing room.¹³ Robert Zemeckis recalls “When we started collaborating on the screenplay, he was protecting the science, making sure that it was all feasible, and I was protecting the drama, making sure that the story moved along without getting too technical.”¹⁴ He would often visit the set and visit Zemeckis in the editing room, offering advice or his thoughts on anything he saw.

Contact occupies a space between science story and science fiction and attempts a realistic portrayal of what first contact from an extraterrestrial source would look like in modern society. It sticks to the hard science, and astronomers who saw the film were impressed by its accuracy towards the actual strategy and techniques of SETI. A scientist at the SETI institute even went so far to say that “the number of errors I picked up you could count on the fingers of one hand.”¹⁵ Bryan Butler was a radio astronomer when *Contact* was filming at the Very Large Array in New Mexico. He was hired to control the radio telescopes during filming and to serve as the on-site science consultant. Instead of using the script, Robert Zemeckis asked Butler what Ellie would actually say when verifying the alien radio signal’s authenticity. Butler quickly wrote some dialogue for Zemeckis that made the final cut of the film.¹⁶ This shows the film’s commitment to scientific accuracy and was not the only time it happened. Zemeckis used other science advisors for other bits of dialogue with one going so far to state “a very significant portion of the technical dialogue [in the movie] is directly what I wrote.”¹⁷ Bryan Butler also “gave advice to the actors, helped conceive the set designs, and assisted in the filming of the radio telescopes.”¹⁸ He even helped choreograph the scenes in the Very Large Array’s lab when they first discover the signal by telling Zemeckis what scientists would do in this situation and even which machines they would use. Zemeckis used this

knowledge to have the actors use the correct machines on camera. This commitment to scientific accuracy in *Contact* mirrors *2001* and the commitment delivers a stronger and more realistic experience for the filmgoer. The films feel scientific, and this is enhanced by the actual technical dialogue of the actors or the realistic engineering of a cockpit in *2001*. They both attempt to feel realistic, whether from Carl Sagan's attempt to realistically depict alien contact in the modern age or Kubrick's desire to out-future NASA's space race. This sentiment appears again with *Interstellar*. It and *Contact* were both produced by Lynda Obst using her scientific connections to network a Hollywood and popular science crossover.

Interstellar was born when Lynda Obst and Kip Thorne were throwing ideas around for a movie based on Thorne's scientific theories of black holes and wormholes.¹⁹ Their relationship began when Carl Sagan set them up on a blind date and they have been friends ever since.²⁰ Jonathan Nolan wrote the screenplay and Steven Spielberg was planned to direct it before moving on due to studio issues. Christopher Nolan agreed to direct the film and two years later it was released. Yet Kip Thorne's involvement from the beginning, before either of the Nolan brothers, established a precedent of scientific authority that permeated through the film similar to Sagan's on *Contact*. Kip created two guidelines when he was meeting with Spielberg, the original director on the project:

1. Nothing in the film will violate firmly established laws of physics or our firmly established knowledge of the universe.

2. Speculations (often wild) about ill-understood physical laws and the universe will spring from real science, from ideas that at least some “respectable” scientists regard as possible.²¹

Lynda Obst agreed to these, and he met again with each of the Nolan brothers to get their commitment to these two rules, which they did. This commitment was kept even when it got in the way of the drama or filmmaking of the film. Jonathan Nolan would consult with Kip on a bi-weekly or more frequent basis about the script, having long conversations about the actual science and whether things were possible. Kip vetoed many directions the story could go because he knew it to be scientifically impossible.²² Even when at a standstill, Christopher Nolan backed down if an idea was not possible. Thorne writes “Chris’s ideas occasionally seemed to violate my guidelines but, amazingly, I almost always found a way to make them work, scientifically. Only once did I fail miserably. In response, after several discussions over a two-week period, Chris backed off and took that bit of the film in another direction.”²³ Thorne, like Sagan and Lange, was a frequent contributor on set and consulted on all aspects of the film. Thorne met with all of the actors on the film explaining the scientific concepts and met extensively with the visual effects team when creating the astronomical effects.²⁴

This attention and subservience to scientific detail mirrors *2001*’s perfectionism and *Contact*’s scientific influence. *2001* and *Contact* took creative license with their stories, however, where *Interstellar* did not. Every aspect of *Interstellar*’s story is backed by science, and this is best illustrated in Kip Thorne’s book *The Science of Interstellar* where he explains the actual science and mathematics behind the entire film. The book is incredibly detailed and he illuminates the exact scientific theories that

inspired or justified every aspect of the film, from the dust storms to the presence of water on Miller's planet. Through personal anecdotes and sheer scientific accuracy it becomes clear that Thorne was consulted on every step of the film. The best example of this is Gargantua, the black hole Cooper descends through, which Thorne spends the bulk of the book theorizing, analyzing, and explaining.

Christopher Nolan approached Thorne with the desire for every hour on Miller's planet to be seven years back on Earth, to which Thorne had to figure out if this was even possible let alone how it would happen.²⁵ Tinkering with his equations he figured it out, and he had to increase the spin of the black hole to a degree which was possible but extremely unlikely to ever exist in nature.²⁶ Because the black hole's spin was a certain speed, this led to changes in the film down the road, specifically in the visual rendering of Gargantua. Further, the actual drama of Miller's planet is completely related to the science behind Gargantua. The inspiration for the tidal waves and intense gravity of the planet is scientifically a byproduct of Gargantua's proximity to the planet and its spin. Thorne calculated the exact distance Gargantua would need to be from the planet to create such effects. Gargantua's rendering is the most accurate depiction of a black hole ever created, and this arose from Kip Thorne's relationship with the visual effects team.²⁷ Gargantua's visualization was not an artistic vision but rather an output of intense computer simulation based on Kip Thorne's equations for how the black hole would be seen from an IMAX camera's perspective if that camera was floating in space near the black hole. The visual effects team had to create new rendering software for the black hole and this software was based on research from Thorne.²⁸ The calculations and renderings for Gargantua got so intense they ended up holding 800 terabytes of data.²⁹



Figure 2.2 - Gargantua is the most accurately rendered black hole in scientific history

Since a black hole had never been rendered so accurately, no one knew what it was going to look like. There was a halo around Gargantua and the team thought it was a bug until Kip Thorne shouted “of course” after seeing it. The halo was a result of the black hole warping the accretion disk (the colors that are seen around Gargantua) and was a phenomenon inherent in Thorne’s algorithms and the data he gave.³⁰ The data of Gargantua is so accurate that Thorne published multiple papers based on it. Asked about this he says “this is our observational data...That's the way nature behaves. Period.”³¹ Gargantua is still a beauty to be seen, majestic and overwhelming in its grandeur. It can stand on its own compared to other blockbuster cosmic renderings. Paul Franklin, the visual effects supervisor commented “science fiction always wants to dress things up like it's never happy with the ordinary universe...What we were getting out of the software was compelling straight off.”³²

Interstellar is grounded in and completely informed by real science, and *2001* and *Contact* as well to a similar extent. Science as a field is a major part of each of these films, to the point where the lead characters have a doctorate in some scientific field and is working in a scientific role. The main characters of *2001* are Dr. Heywood Floyd an astronomer,³³ and Dr. David Bowman and Dr. Frank Poole who are engineers on the *Discovery*, and HAL a supercomputer. *Contact* is about Dr. Ellie Arroway and her relentless scientific pursuit which seems to always be blocked by Dr. David Drumlin, the President of the United States' science advisor. Cooper is an engineer and NASA pilot so he probably has a doctorate based on NASA's present standards for being an astronaut. Regardless, while trapped as a farmer he manages to engineer machines to do the work for him. Every other member of the *Endurance* has a doctorate and work as scientists on the mission. Murph occupies a similar space as Cooper, but based on her research with Professor Brand it is reasonable to conclude she has the equivalent.

The science also makes these films realistic because they can actually happen. Clearly we do not live in the brutal Earth depicted in *Interstellar*, but it is possible with our current climate trajectory, and if some bulk beings were to open a wormhole near Saturn to another galaxy, we would probably send a probe through it. Although quite unlikely, these events *could* happen. Similarly, the space life in *2001* is still plausible and some of the technologies envisioned in that film are common place today. As the research paper by NASA shows, *Discovery One* is a realistic and possible way for a nuclear propulsion spacecraft to exist and up until Jupiter the events could certainly happen. *Contact* was an attempt to realistically depict how modern society would react to a message from extraterrestrials and its science advisors like Bryan Butler ensured its

technical accuracy. A SETI program *could* pick up an alien frequency mirroring our broadcasts and the human reaction would probably unfold similarly. They could even send us advanced technology that we would deliberate over understand and building. The events of these films are plausible made in part by their scientific influence and those who advised the filmmakers.

Plausibility is one of the hallmarks of science fiction narratives. Long before “science fiction” was the commonly accepted name of the genre “speculative fiction” was a popular choice.³⁴ The name speculative fiction sheds light to one of the original characteristics of the genre: to speculate on the future, possible technologies, or possible things that could happen. This is certainly a major aspect of *2001*, *Contact*, and *Interstellar* which all seek to speculate on either a possible future or a comparable present. They use their scientific basis to make guesses at the future and the problems it holds, possibly preparing us for what comes ahead. This is the very nature of some science fiction and the outer space film in particular.

The Known and the Unknown

Science fiction seen as “speculative fiction” and the plausibility of these films are two indicators to what science fiction, and these films, truly are. At their core, *2001*, *Interstellar*, and *Contact*, are science fiction films and their inner philosophy and meanings are linked to the meanings of the genre as a whole. To understand science fiction is to understand these films. Unfortunately science fiction is notoriously difficult to define with a myriad of possible definitions. Science fiction author Judith Merrill admits:

I never did know just what “science fiction” meant: in all the nights I stayed awake till dawn debating definitions, I do not recall one that stood up unflinchingly to the light of day. They all relied, in any case, on certain axiomatic assumptions about the meanings of “science” and “fiction.”¹

It is strange the difficulty in drawing clear boundaries between what is and what is not science fiction, yet it is easy to identify a science fiction film while viewing. *2001*, *Interstellar*, and *Contact* are clearly science fiction films. One of the reasons could be their plausibility and scientific influence.

The great science fiction author and critic Samuel Delany put forth a simple yet helpful definition for science fiction. He distinguished “realistic fiction as concerning events that could have happened; fantasy as concerning events that could not have happened; and science fiction as concerning events that have not happened, that have not happened yet, or that might happen.”² Science fiction’s difference from fantasy is that fantasy concerns events that could never happen whereas science fiction concerns

events that are plausible. Kip Thorne muses similarly while discussing the time difference on Miller's planet: "Interstellar is science fiction, not fantasy. Gargantua's ultrafast spin is scientifically possible."³ Science fiction is also different from realistic fiction because realistic fiction concerns events that could *have* happened whereas science fiction concerns events that *could* happen. Delany distinguishes realistic fiction from science fiction by saying realistic fiction are events that could have happened in the past, whereas science fiction are events that could happen. I would elaborate on this definition by considering the time difference to be static in technology. Realistic fiction can happen in the future, but the technology they use within is either ignored or similar to our present or past. In other words their level of technology is familiar to our present. Science fiction, on the other hand, will have the events that could happen but at a higher level of technology than the present. These distinctions are by no means definitive, and are quite open to contradictions, but they are a piece of the puzzle and bring us closer to understanding how science fiction films are different from other films. Thinking of science fiction as concerning events that could happen echoes the plausibility created by these film's scientific origins. Their accuracy and commitment to realistically depicting events in a scientific way while still imagining what could be is a fundamental part of their filmmaking and a reason they can be considered science fiction.

Plausibility may be a useful definition for science fiction but at the same time it seems to miss the spirit of the genre. A Western takes place in the west, sure, but that definition misses the common themes of conquest of wilderness, the tension between civilization and the "wild wild west," and changes based on new industrial technologies. The science fiction film concerns events that could happen, but this definition misses

deeper themes of the genre. Similarly, the outer space film is a film where events happen in outer space, yet there are deeper themes and meanings that are overlooked by that simplistic definition. Thus in order to understand the science fiction outer space film deeply we must understand the science fiction film past the definition of whether the events are plausible.

Science fiction has a philosophy embedded within its genre that distinguishes itself from other genres, one that mirrors learning and the scientific method itself. Gary K Wolfe in his book *The Known and The Unknown: The Iconography of Science Fiction* put forth the idea that science fiction concerns the dichotomy of the known and the unknown. It uses elements familiar to us, the known, and juxtaposes them with the novelty, spectacle, or just strange which we have never seen before, the unknown. These two elements exist in tandem and tension within science fiction stories, and it is this tension that creates their unique feel and informs their conflict. Often this tension with the unknown takes precedence in the narrative. Wolfe explains:

In science fiction it is less important to conquer the villain than to conquer the unknown, and the importance of this conquest is what the ideological structure of many science-fiction narratives teaches. The unknown is an overwhelming presence in science fiction, and it is the transformation of the unknown into the known, usually by breaching a symbolic barrier that separates the two, that I believe characterizes much of the narrative action of the popular science fiction...and accounts for its conventions and formulae.⁴

The conflict against the unknown is at the crux of the science fiction story and often the struggle to breach the unknown is what propels the narrative and the hero forward.

Interstellar's Cooper must venture to another galaxy, the unknown, and determine where humanity can go to survive, convert it into the known. On a thematic level the film examines how we look at and understand the unknown as well. Murph is concerned that there is a "ghost" in her room due to the unexplained phenomenon of books falling off of her shelf. There is an unknown movement in her room and she rationalizes, makes it known, by believing there is a ghost. This is escalated when the coordinates to a NASA base are discovered in her room through gravitational waves. At this point Cooper does not have an explanation either, and the only way he can rationalize it is by saying it is a "supernatural occurrence." Professor Brand, unsure why a wormhole was left near Saturn or Cooper was sent the coordinates to his secret base, can only rationalize these actions as a mysterious "they" helping out humanity. By the end of the film, however, Cooper has taken these concepts from the unknown into the known: Cooper was Murph's ghost, he sent himself to NASA's base, and "they" were humans who have evolved past our four dimensions but needed to save their ancestors.

Wolfe wrote his book in 1979 and based his ideas mostly on science fiction literature with little reference to film. Vivian Sobchack, however, focused entirely on science fiction film in *Screening Space: the American Science Fiction Film* and she came to the same conclusion about the genre within film. She identifies two elements: the familiar (the known) and the alien (the unknown) and how their tension characterizes films of the genre. She writes:

Thus in every [science fiction] film there is a visual tension which exists in such earnestness in no other genre--a tension between those images which strive to totally remove us from a comprehensible and known world into romantic poetry

and those image which strive to bring us back into a familiar and prosaic context.

For a better understanding of this visual tension unique to science fiction, it becomes useful to isolate the two basic kinds of images (the alien and the familiar), examine their components, and then deal with their interaction.⁵

Sobchack sees science fiction films as exhibiting a visual tension between the known and the unknown; they take images that are alien to us, things we have never seen before, and combine or ground them with images that are familiar to us. *Contact* takes a familiar sight and changes its context to make it absolutely unknown. Seeing Hitler being broadcast from outer space is jarring until we learn that it was one of the first television broadcasts that could leave Earth's atmosphere.⁶ *2001* does similarly when we see Dr. Floyd on a space flight. The familiar drudgery of airline flying is contrasted with weightlessness and high technology. A pen floats through the cabin and there is a television in the back of the seat which is juxtaposed with the familiar shape of an airline cabin and a sleeping passenger. Sobchack notes that mixing the mundane with the alien is characteristic of science fiction films because that is what makes us believe in the possibility of these films. It allows them to both visualize the unknown and at the same time push for our belief in them. She notes that the often documentary "flavor and style" of these films helps distinguish them from fantasy films while they pictorialize the "strange and totally alien."⁷ Where Wolfe analyzes the tension between the known and the unknown through their narratives, Sobchack analyzes their visual tension through their images, but both analyses are explorations of the same concept. Science fiction's unique power comes from its juxtaposition of the known and the unknown, whether through its narrative or through its images and sounds, or all of the above.

Attempting to create a sense of realism by pictorializing the unknown within the known or using a “documentary style” of filmmaking echoes these film’s commitment to scientific accuracy. Further the documentary style functions to make these films more plausible, as in they could happen rather than could never happen. The essential inclusion of the known is what distinguishes these films from fantasy, and from this context their commitment to scientific accuracy makes perfect sense. These definitions of science fiction are by no means the end all of what is and what is not science fiction. Sobchack points out, rightly so, that “definitions strive, after all, for exclusivity, for the setting of strict and precise limits which, when they become too narrow, seem glaringly and disappointingly arbitrary.”⁸ *Star Wars*, stands in stark contrast to these definitions. The argument can be made that *Star Wars* is more fantasy than science fiction: the Force is more magic than a natural phenomenon and no efforts are made to explain how it works, or really how any of the aspects of the film work at all. Nor does the film attempt to portray its events as plausible or with a documentary style. George Lucas in an interview with Rolling Stone even says “I just wanted to forget science. That would take care of itself...I didn't want to make a *2001*, I wanted to make a space fantasy.”⁹ But the film does juxtapose the alien with the familiar: lightsabers resemble swords, Luke is a farmer but in an alien setting, and an evil empire must be overcome by a chosen one. All of these elements are quite familiar to us, and provide a basis of understanding from which we can later interpret the Force or the spaceships. Seeing science fiction as rigidly defined makes *Star Wars* a mystery and to place it in a firm category would be to diminish its uniqueness as a film. It occupies a space in between and it is better to see these definitions as guidelines over hard laws.

Exploring these definitions does help us understand the three films and understand how science fiction operates. They show us the parallels science fiction has to real science. Moving the unknown to the known is at the core of scientific philosophy which seeks to understand the world. As a modern society we use the scientific method to understand the unknown, more so than religion or superstition. Science is a byproduct of human's natural desire to learn and our wondering about the unknown is at the heart of our curiosity. Moving things from the known to the unknown is one of the most basic human acts.

Wondering about the unknown and attempting to explain the unknown is also at the heart of human understanding, and science shares this facet with mythology. Mythology, like science and superstition, is a means of understanding the unknown. Wolfe argues that science fiction acts like a mythology for technological society. Mythology is the force that "assures man that what he is about to do *has already been* done...there is no reason to hesitate before setting out on a sea voyage, because the mythical hero has already made it in a fabulous Time. All that is needed is to follow his example."¹⁰ Mythology acts as a forebear of experience within the mind, and it takes what could be the unknown and brings it into the known. Science then provides humans with a means of trust when venturing into the unknown, and acts as a modern mythology for a technological time. Wolfe argues that science fiction allows a "technological society to explore the mythical aspects of reason itself, specifically of scientific reasoning. Science, one might well argue, is the real myth of our culture, and science fiction is merely the codification and expression of beliefs in that myth."¹¹ Science fiction is the stories to our modern mythology; if science explains the unknown

then science fiction dramatizes the act. If science has the means to solve a problem, then science fiction shows us how we can solve problems, visualizes the process, and inspires us to act.

Science fiction is also known for inspiring a “sense of wonder” within its works. Wolfe explains that this sense of wonder comes from science fiction’s icons which are representations of the divide between the known and the unknown. He uses the example of the spaceship, which either carries the known into the unknown, such as inhabitants from Earth into the beyond, or carries the unknown into the known, such as aliens to Earth. He argues that this combined with their plausibility is what invokes a feeling of wonder when we think or read about them. The same idea can be extended to the visuals of science fiction film. We experience wonder when we are shown the unknown mixed with the known. *Gargantua* is breathtaking and perfectly understandable; by the time we actually see it in all its glory we have learned a great deal about its nature and watched its effects such as the slowing of time and tidal waves on Miller’s planet. Nolan reasonably saves a full view of it until over halfway through the film, after he has forced exposition of it quite a few times. The sense of wonder is the draw of science fiction and characterizes the pleasure many get out of the genre. Wolfe captures the feeling perfectly:

In experiencing the sense of wonder, we experience a feeling of endless possibility, like standing at the edge of a vast abyss that is close enough to us to be real yet great enough to be unfathomable. There is a sense, in the best science-fiction works, of being set in intellectual motion, of being led down a chain of potentialities with seemingly endless ramifications and endless mysteries.¹²

2001, *Contact*, and *Interstellar* all contain that feeling; we watch the scientific heroes venture into the unknown, and armed with their rationality they fearlessly move forward as we marvel at the world they explore and the mysteries they encounter.

Outer Space as a Spectacle

A hallmark of science fiction is the grand visual; the science fiction film has had a penchant for the spectacle and the special effects¹ since Méliès's *A Trip to the Moon* and is still strong today in films like *Interstellar*. This nature towards the visual, external, and spectacle is a product of its reliance on exhibiting a visual tension between the known and the unknown. Attempting to create a sense of wonder on screen naturally lends itself towards spectacular displays and focuses on the external. It makes sense, then, that science fiction films tend towards the visual and special effect. In order to visualize the unknown the filmmaker must create the unknown and often this requires cinematic illusion. Outer space films especially rely on special effects due to the simple fact that it would be difficult or impossible to shoot in outer space. Kubrick, Zemeckis, and Nolan must rely on alternative means to portray the heroes in space and they all went to great lengths to visualize this. The special effect often brings the audience's focus onto the external and visual itself. It can bring the narrative to a halt, allowing the audience to stop and admire, but it also redirects the viewer towards the visual nature of cinema, sometimes forcing them to become aware of their own perception. *2001: A Space Odyssey* does this with Dr. Floyd's journey through space. We watch as futuristic spaceships float through space beautifully. When he journeys later to the crater of the moon, we care not for the purpose of his mission but the beauty of his journey there. Kubrick draws attention to his visual creations and we sit in wonder at what he has created; he takes the mundanity and makes it spectacular. The special effect is itself a spectacle, it inspires wonder by visualizing the unknown and brings the focus onto itself.

2001 is almost entirely special effects, and it is no wonder that the spectacle is at the forefront of the film. Kubrick intended *2001* to be a visual experience, going so far as to admonish analytical meaning and refusing to comment past the plot of the film. In an interview with Joseph Gelmis, Kubrick says:

2001, on the other hand, is basically a visual, nonverbal experience. It avoids intellectual verbalization and reaches the viewer's subconscious in a way that is essentially poetic and philosophic. The film thus becomes a subjective experience which hits the viewer at an inner level of consciousness, just as music does, or painting.²

2001 is a film that devoids us of the plot, dialogue, and character development that characterizes many other films. Doing this attunes us to the visual experience and the spectacle that is the film. Since there is no dialogue to grasp onto, we must reorient our understanding of the film towards a visual mode. And the film delivers on this visual experience, striking us with sights that had never been seen before at the time. We are

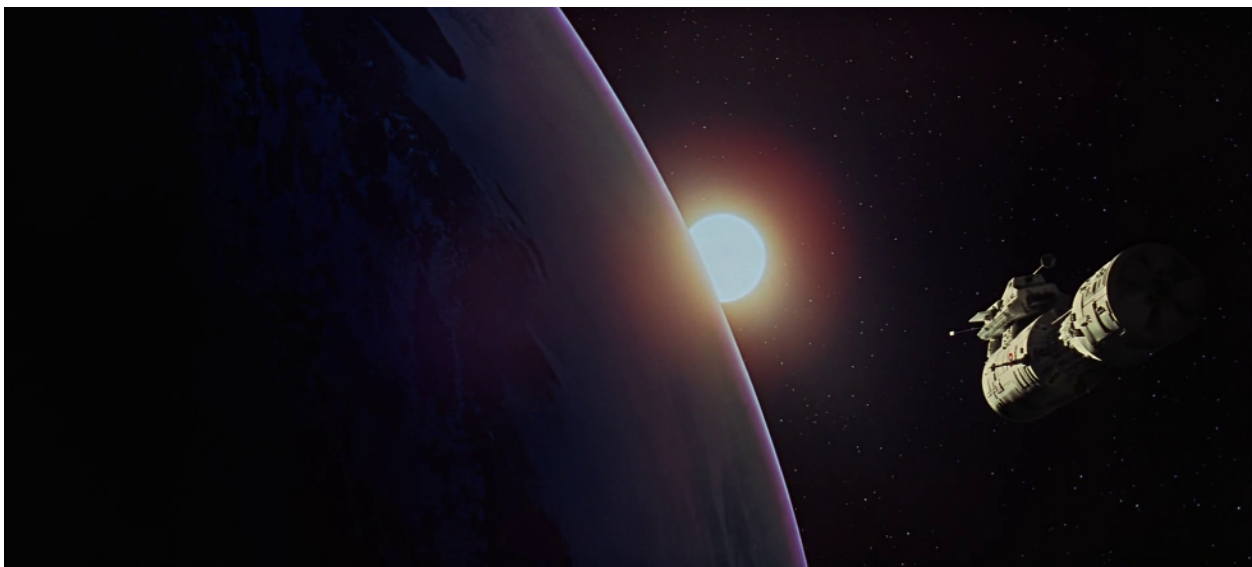


Figure 4.1 - *2001: A Space Odyssey* visualizes an Earth not seen from such heights or in color before

treated to a full color Earth in its grand majesty, dwarfing the spaceships on the screen. Ships float through space with a gentle grace and we are invited to imagine this possible future where we could enjoy a life like this. This otherwise utterly mundane process of commuter travel is made fascinating by its visual beauty and imagining of the unknown. We follow the spaceship through its docking procedures with a feeling of curiosity akin to a child riding their first airplane. The film spends far more time on the actions of space and visualizing the unknown than traditional dialogue or character development. In a two hours and forty one minute film there are only forty minutes of dialogue, a testament to its visual nature.³

The opening sequence of *Contact* also attunes the viewer to a visual and auditory experience without dialogue. At the time it was the longest sequence ever created using CGI (computer generated imagery),⁴ and from the first frame we are jolted into a visual mode of understanding. Earth floats in its majesty while a mash of contemporary tunes assaults our ears. The camera pulls back slowly and as it moves backwards the mash of music moves backwards in time. Through this single act of auditory, visual, and kinetic

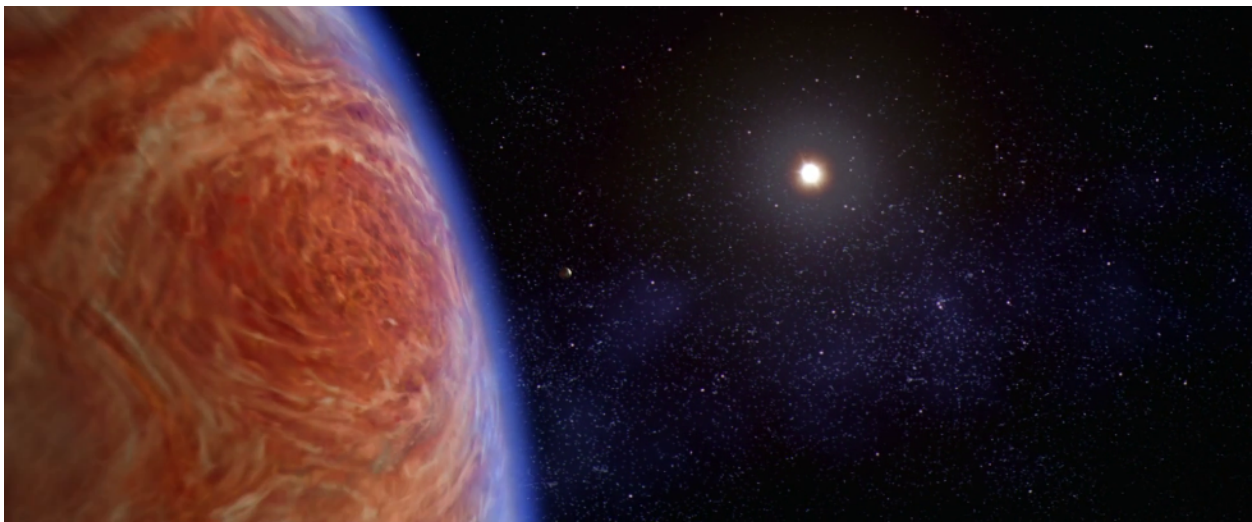


Figure 4.2 - *Contact*'s opening zoom out

identification we are attuned to the camera's position and we move backwards in time with it. This sequence also does an incredible job of illuminating the scientific reality of radio waves moving in space. It is a scientific fact that listening to the radio waves emitted from Earth at distances can be similar to moving backwards through time as the radio waves move at a speed concurrent to the aging of our culture. This movement makes us understand this concept intuitively on a visual and kinetic level. Of course this concept is central later in the film, and Zemeckis has set us up for it perfectly. Further the spectacle of the visual effects sequence becomes the focus of the film. We sit in wonder as the beautiful cosmos is rendered before our eyes; the beauty of nature just outside our planet that was unknown to us is shown in its glory. We also sit in wonder as the scientific fact of radio wave transmission is shown to us and made known through the visceral feeling of moving backwards in space and hearing the music move backwards as well. As the camera pulls further and further away from Earth and our solar system, the sounds get dimmer and quieter until we can hear no more. We are now moving backwards through the cosmos in complete silence and its grandeur is rendered before our eyes in quiet majesty. Just like we viscerally felt the radio waves move away from Earth we now viscerally feel just how small we are in the cosmos and just how grand and far we can go. Movements through the cosmos and the grand possibility of it are another central component of the film and Zemeckis sets us up for this visually from the start. Finally the sequence ends by pulling through a young Ellie's eye and we are linked with her future.

Contact's first sequence and its effect on the audience through its special effects mirrors the arguments made by Annette Michelson about *2001* in her analysis "Bodies

in Space.” She explores how the the special effects of the film redirect the viewer to the visual, auditory, and kinesthetic conditions of the cinema and create a self awareness of this perception. For example, she writes how the floating pen in *2001* creates a sense of our own feeling of weightlessness:

The writing pen floating in the space-craft’s cabin and retrieved by the hostess prior to her movement over wall and into ceiling had signaled to us, as it were, the passage into the weightless medium. Since, however, we define and comprehend movement — and repose — in terms of our own bodily positions, through the sense of inner coordinates rather than in terms of what is merely seen, that signal could not fully prepare us for, or inform us of, the suspension of those coordinates, inevitable in the weightless environment...The difference between the two qualities and intensities of response is the difference between things seen and things felt, between situations visibly observed and those sensed haptically, between a narrative emblem and a radically formal embodiment of, spatial logic.⁵

Michelson explores how we understand cinema visually through recreating what we see in our body. Watching the hostess move through the cabin shocks us as she defies gravity and that shock comes from our sudden understanding—and since we identify with the cinematic image through our body, feeling—of the weightless environment. We feel her lack of gravity viscerally. Thus as we watch a pen float weightlessly and the hostess have to use her “grip shoes” to get it, we cannot help but identify with that weightlessness through the cues given on screen. *Contact*’s radio wave sequence accomplishes a similar feeling by linking movement with auditory time. We identify



Figure 4.3 - The floating pen and stewardess's steps give us cues towards the weightlessness of the cabin

with the camera's perspective and as it moves backwards through space so do our bodies. Combining this movement with a movement back in time through cultural sounds, we feel ourselves move backwards in time or like a radio wave floating through space. Thus we understand on a haptic level the movement of radio waves through space. Further as we depart from our solar system and galaxy, we feel the vastness of the cosmos, just how huge it is and just how small we are.

The outer space film takes us on journeys into unknown worlds, and it uses the cinematic language to move our bodies in tandem with their special effects to create unknown worlds and bring us into new realities. Kubrick does this with all of his cinematic tools at his disposal. He "imposes futurity through the eye and ear," and thrusts us into the future by using the film's "movement, scale, sound, pace and intensity"⁶ to convey the reality of the scene. The audience watching *2001* undergoes a voyage of their own; the vast visual field, the lack of perceptual cues towards physical orientation, and the identification with the weightless characters on screen all create a haptic experience different from any before. We are brought into outer space, and then

into a dangerous crucible, and finally to a new reality “beyond the infinite.” At each stage of the odyssey Kubrick transforms the image, and we follow with him, to convey the reality of the characters undergoing the journey.

Where the experience was light in Dr. Floyd’s travels, the *Discovery One* takes a darker turn and the visual splendor of the first act becomes slowly menacing and unwelcome in the second. Our first experience within the ship is Dr. Poole running endlessly in a circle around the cabin while *Gayane’s Adagio* plays; the down tempo and lonely nature of the piece conveys feelings of isolation and depression and it is certainly a contrast to *Blue Danube*. The camera lies horizontal conveying once again that we are in a different, non-earth like space. It cuts to a point of view shot following Dr. Poole from behind and the narrow crampedness of the cabin feels claustrophobic. Where Dr. Floyd could walk and sit comfortably, Dr. Poole must run uncomfortably. The camera follows Dr. Poole from behind and then forward and we can’t help but take on his movement. This movement seems like him running to escape the confines of the ship. It then cuts to HAL’s omnipresent eye stagnant with a reflection of the ship’s rotation. We



Figure 4.4 - The *Discovery One* is noticeably more cramped and dirty than the sleek spaceships before

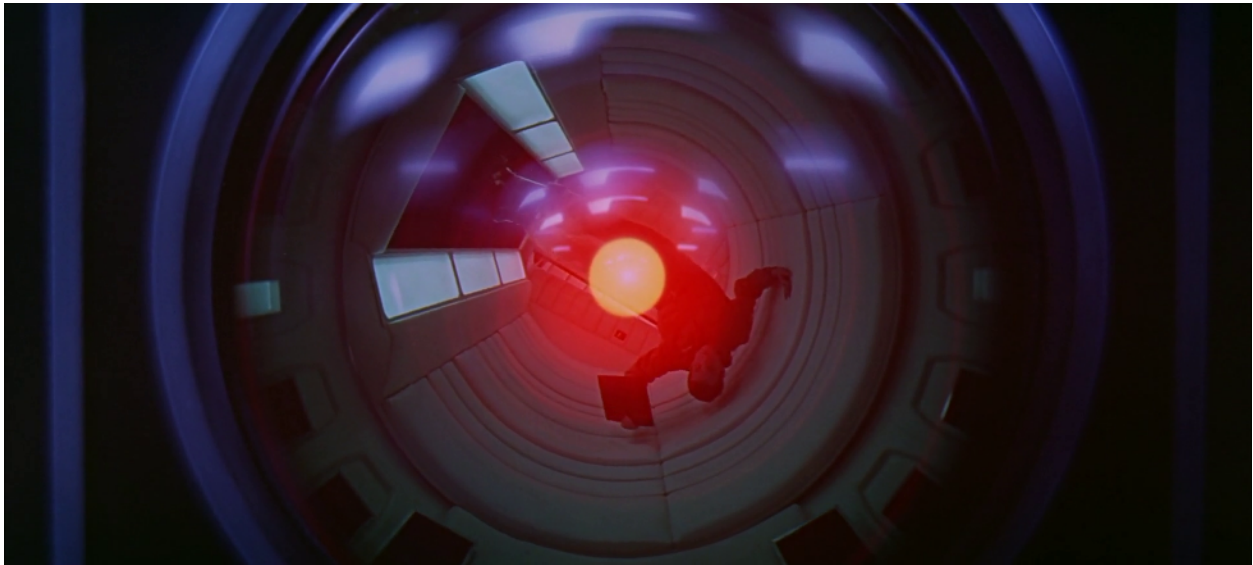


Figure 4.5 - HAL's gaze is omnipresent and unmoving in the face of the crew

move with Dr. Poole but HAL remains still and in opposition. The unnatural and inhuman aspect of *Discovery* is highlighted through Kubrick's unnatural camera angles watching the crew move around. What was wonder has shifted to discomfort. There is a sense of confinement and coldness, the whites of the ship are no longer spectacular and clean as they were with Dr. Floyd and the other crew members are literally frozen sitting in future coffins only feet away from the living crew members. There is no privacy in HAL's gaze and it is omnipresent; there is no moment on the *Discovery* where it is not watching, hearing, or reading lips.

Kubrick did not have CGI as a tool but still created an incredible world in outer space. Nor did he have the cosmic images afforded by advancements in space technology to model the cosmos after. His colored Earth was decently accurate but no one knew for sure at the time what Earth looked like from afar because the visual model did not exist. *Contact* and *Interstellar* are decidedly different films from *2001* in this regard. Comparing the initial outer space scenes from *2001* and *Contact* shows a myriad of differences. *2001*'s Earth is pale and undetailed, but this can be attributed to a lack of

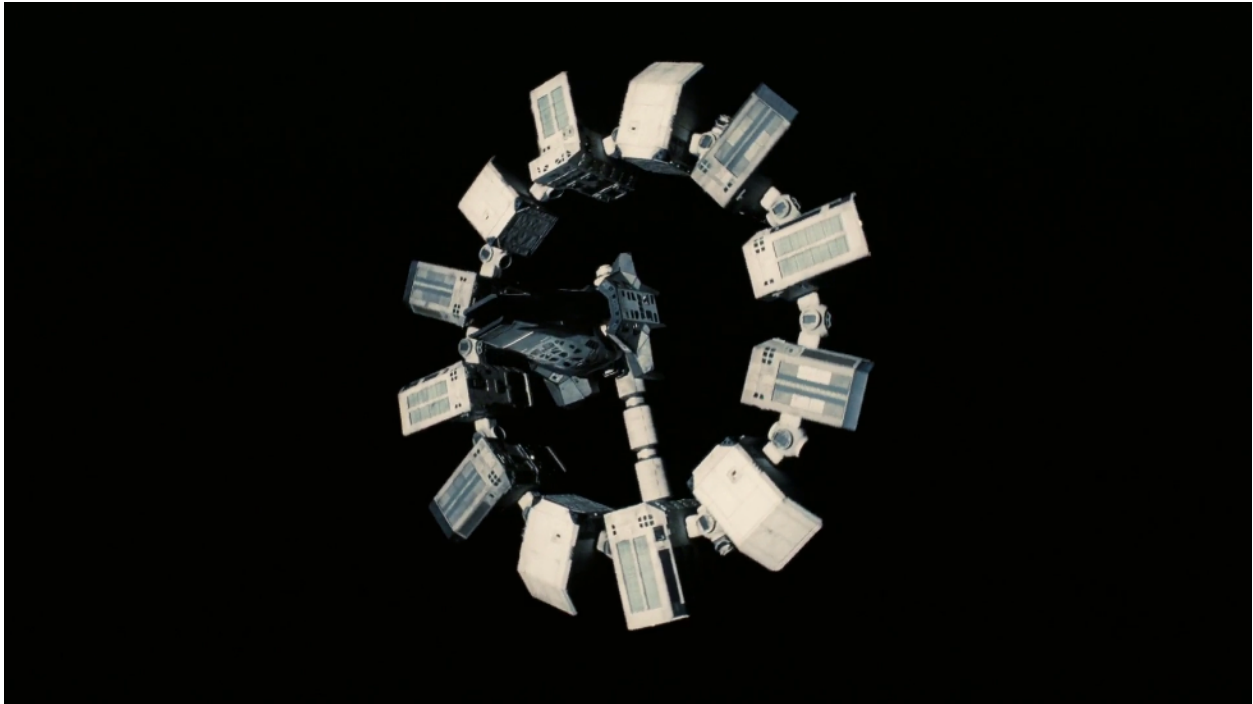
understanding in what Earth truly looks like. *Contact*'s Earth, by contrast, is highly detailed. *Contact* shows a more vivid and vibrant cosmos; there the blackness is glittered with stars where *2001* showed more sparsely. *Contact*'s difference increases as it pulls away from Earth and shows a colorful cosmos where Kubrick's is again sparse and black. The purpose of this first sequence in *Contact* is to show the viewer the beauty of the cosmos, so the oversaturation of colors makes sense. *Interstellar* stands in the middle of the two, at times downplaying the stars and casting the Endurance against a black backdrop, at other times showing the cosmos in a vivid but accurate beauty.



Figures 4.6 and 4.7 - *2001*'s outer space is muted compared to *Contact*'s vibrancy



Saturn is shown in stunning detail against a pure black background without a single star in sight. The Endurance is then shown, accurately, as a tiny speck against the grandeur and milky textures of the planet. Once through the wormhole, however, the cosmos is



Figures 4.8 and 4.9 - *Interstellar* shows a relatively vibrant cosmos only after traveling through the wormhole



enhanced and textured. The blackness has been filled in with specks and constellations. Nolan probably did this to heighten the natural splendor of the cosmos once through the wormhole, but to downplay it until that vivid scene.

Interstellar's wormhole scene transports us through the spectacular and imparts the beauty and danger of space travel onto us. The wormhole is depicted as a bubble, far more cosmically detailed and vibrant than any of the outer space scenes before. Nolan shows us their faces as they approach the wormhole and in combination with the organ's crescendo we feel an anticipation and suspense. The crew and *Endurance* is quickly put into a helpless state as the swirls of the cosmos engulf them. Nolan shows their reactions and combined with the vibrations of the ship and the intense crunching metal sounds we feel as they feel. Nolan is a master of creating suspense through special effects and movement and many times throughout the film we feel the danger as Cooper and his crew do. The wormhole sequence is a lighter foreshadow of the beauty and dangers ahead.

Hans Zimmer's soundtrack adds to the intensity of *Interstellar's* action scenes. Christopher Nolan approached Hans Zimmer without any indication that he was creating an outer space science fiction film.⁷ He wanted to free him from any preconceived notions of what that should sound like, so he gave him a page of dialogue and said the film was about the relationship between a father and son. Hans Zimmer created a piece based on his own experience as a father which would become the cornerstone of the entire soundtrack. Only then did Nolan reveal it was a grand science fiction narrative, after the main melodies had been worked out. Nolan took the piece Hans created and finished writing the script while listening to it, and used it throughout

production, so the emotional resonance from the soundtrack has inspired the film as a whole.⁸ Nolan wanted to create a feeling of religiosity to the film so he advocated for a church organ and they recorded in the Temple Church in London. He says “the organ, the architectural cathedrals, they represent mankind’s attempt to portray the mystical or the metaphysical, what’s beyond us, beyond the realm of the everyday.”⁹ Themes of the beyond and portraying the mystical arouse feelings of the unknown and sublime. It is clear Nolan wanted these themes to be evident within the music of the film. Hans Zimmer remarks that the organ is very human because it can only make sound with air; it needs to breathe on each note and “you hear the breathe, you hear the exhale.”¹⁰ Nolan says “you feel a human presence in each sound.”¹¹ The organ works perfectly to keep the film human focused. Nolan notes that it conveys an intimacy but also a scale, a feeling he was attempting to convey within *Interstellar*.

Although *Interstellar*’s music was written with love and not science fiction in mind, the soundtrack still conjures up feelings of an outer space epic. This could be due to its quite electronic nature; the soundtrack features synthesizers and electronic audio effects. There is a grandiosity to it, which lends a lot from the use of the organ, but more so it *sounds* like an epic. There is a feeling of adventuring into the unknown, and perhaps this comes from Nolan’s desire to instill a feeling of religiosity. Regardless there are parallels to *2001*’s soundtrack besides the fact that they both wanted to differentiate from normal science fiction soundtracks. *Dreaming of the Crash* recalls *Also sprach Zarathustra* with its soft quiet melodies proceeding a loud crescendo. They both function as the first musical accompaniment of the film, foreboding the journey to come. When the crew boards the Endurance for the first time, the music resembles *The Blue*

Danube.¹² Both are the first moments in outer space within the films, and the song is used when the *Endurance* begins spinning for the first time which is a clear reference to *2001*'s sequence and choice of song.

2001 has a classical soundtrack and uses compositions that are centuries old which stand in sharp contrast to the futurism of the film. When asked about this Kubrick answered "However good our best film composers may be, they are not a Beethoven, a Mozart or a Brahms. Why use music which is less good when there is such a multitude of great orchestral music available from the past and from our own time?"¹³ Kubrick had used the compositions as "guide pieces" while editing and commissioned Alex North to create a score based on those compositions. As a last minute change Kubrick chose to ditch North's score for the guide pieces on their own.¹⁴ Listening to North's rejected score however makes it clear that it would have been the wrong choice for *2001*. Roger Ebert captures the issue perfectly by saying the film score "would have been wrong for *2001* because, like all scores, it attempts to underline the action—to give us emotional cues. The classical music chosen by Kubrick exists outside the action. It uplifts. It wants to be sublime; it brings a seriousness and transcendence to the visuals."¹⁵ A score would have detracted from the experience of the film by attempting to make a definitive emotional experience. *2001* is a film which allows the viewer to come to their own conclusions, and a score would have conflicted with this. The film's piece's meanings correlate with the scenes they are featured in within the film. *Also sprach Zarathustra* aligns to Nietzsche's book of the same name, a clear influence on the film.¹⁶ Kubrick chose Strauss's *The Blue Danube* for Dr. Floyd's space flight sequences, reportedly because of an association Kubrick made between the spinning motion and

the dancers of the waltzes.¹⁷ *Gayane's Adagio* can be heard while Bowman and Poole are on the Discovery, lending the music's loneliness to their isolation. The scenes with the monolith are accompanied by György Ligeti's pieces *Lux Aeterna*, *Requiem*, and *Atmosphères* which use micropolyphony to create their off kilter and uncomfortable feel. Kubrick also uses the pieces as recurring motifs for the film. *Also Sprach Zarathustra* is heard in the first moments of the film as the Moon, Earth, and the Sun line up on each other, and then when the ape starts using the tool, and finally when Bowman becomes the star child at the end of the film. *The Blue Danube* appears during both of the space travel sequences, and *Requiem* appears three times all during sequences with the monolith.

Outer space films often involve isolation and solitude and incorporate these as motifs visually, audibly, and thematically. Outer space is a lonely and inhuman place, and the astronauts of these films are often traveling where humanity has never been before in the untouched and barren wilderness beyond Earth. We hear this in *2001* on the Discovery: light hums of the space station can be heard which convey the machine reality of the ship, and its absence to convey the dangerous isolation outer space has. Machinery and humanity are sharply juxtaposed in the film's audio while the crew have their space suits on. Heavy breathing is heard at the same time of the constant hum of machinery. When Poole is thrown into space, he drifts in complete silence, both a representation of the actual silence of space and a highlight of the absolute helplessness he has floating away. Poole drifting silently through space is the epitome of outer space's dangerous isolation. We see him tumble, moving further away from the camera, until he is a small speck in a sea of blackness. Outer space is a dangerous and lonely place,



Figure 4.10 - The floating astronaut in space is a recurring visual motif in outer space films

utterly inhuman and inhospitable, and the visual treatment of this scene communicates that. There is no help for Poole until Bowman comes to get his body. If the weightlessness of a pen is the wonder of outer space then the disconnected astronaut is the nightmare, and just as we feel a sense of weightlessness through the cues on screen we feel a sense of utter helplessness and isolation as Poole drifts through space.

The floating astronaut in outer space image can be seen in almost every outer space film since *2001*, but each film has a different tone around this scene. When Ellie drifts outside of her pod in *Contact*, it is with feelings of euphoria and awe and she is gently brought down to a beach created from her memories. *Interstellar* features Cooper drifting alone twice: before and after the Tesseract. He falls into the Tesseract with a feeling of utter panic and unknown. As he ejects from his spaceship the film goes silent except for his panicked breathing. We identify with his body as we are given close ups and point of view shots from his perspective; the camera tethers to him and we feel his motion as he descends into the unknown of the black hole. His irregular breathing

makes us hold our breathe in unison with suspense, and as we identify with him when he falls we feel like we are falling too. Cooper leaving the Tesseract is a far more different feeling, one of freedom and calm over panic. He drifts through the beautiful abstracted light of the wormhole and ends in Saturn's space still helpless and alone but peaceful.

Themes of isolation are abound within *Interstellar*. The Lazarus crew were all sent in solitude to their respective planets, most knowing they would never see another human again, and were the first humans to voyage into another galaxy. Murph is isolated from her father on Earth. We watch Dr. Romilly fret over the isolation of space and later have to endure it. Before Miller's planet he sits in his cabin and cannot stop thinking about the thin layer of metal that serves a barrier between his livelihood and the vast nothingness and complete inhospitable nature of outer space. Dr. Romilly then endures 23 years of isolation and solitude on the Endurance. His face and emotions are drained when Cooper and Dr. Brand return; the isolation and solitude has fundamentally changed who he is. Cooper leaves Dr. Brand to descend into the Tesseract and she voyages alone, millions of light years away from anyone. *Contact* features a different kind of isolation that Ellie experiences after she returns from her voyage. She is isolated because of her experience and being the only one who truly knows what she saw. All three of these films show humans going the furthest past Earth they have ever been, often with the main characters being the ones who travel further than any human had before. Bowman is the first human to reach Jupiter and Ellie is the first human to travel past our solar system and make contact with an alien species.

Cooper is the first human to pass through a black hole and they all journey incredibly far from Earth.

Isolation feels all the more real to us as we internalize the visual and auditory cues from the films. Cooper, Ellie, and Dr. Poole and Dr. Bowman all float through space alone and we float with them, internalizing their panic, helplessness, or relief. But we also feel wonder as we are moved from our gravity bound seats into the weightless world of the cinematic reality unfolding before our eyes. These films use their special effects to visualize the unknown and propel us into it visually, audibly, and kinetically. We undergo the journey into the far depths of space just as they do.

Journeying Beyond: The Sublime Sequence

The most intense experience that we as voyagers amongst these astronauts undergo are the film's end sequences. All three films attempt to evoke the sublime within the astronaut and the audience. These voyages venture into the beyond in a fantastic matter and contain a mix of incredible visual effects and imagination on what the far reaches of the cosmos could contain. *2001* sends David Bowman towards a higher consciousness in a journey through colors and space. *Contact* sends Ellie to another galaxy through a vivid and intense wormhole, stopping by incredible sights and landing on a beach with a vast sky of stars. *Interstellar* sends Cooper into a black hole and he finds a Tesseract of his daughter's bedroom at an unimaginable scale. These spectacular voyages all attempt to invoke the sublime in the characters experiencing them and the audience as well.

Scott Bukatman, in his book *Matters of Gravity*, links the sublime of the landscape painters of the nineteenth century to the sublime of science fiction film's special effects.¹ The landscape painters of the nineteenth century would use nature's majesty, specifically their limitless horizons, vastness, and natural grandeur, to convey the sublime through paintings. Often these paintings would tend to provoke a feeling of transcendence by overwhelming the viewer in a visual and cerebral way. The painting would astonish the viewer visually by its grandeur and scale, precise rendering and scrupulous detail, and vividness. Then, it would invite the viewer to "attempt to grasp what fundamentally cannot be grasped"² again overwhelming the viewer and pushing their mind to a state past comprehension; a state which can be characterized by awe.

The viewer would move past their original state and transcend to a new feeling informed by the beauty of the painting. Evoking a sense of transcendence is characteristic of the sublime image. The sublime evokes the feeling of awe, which is a mix of wonder and fear, in the presence of greatness. Bukatman describes the feelings the sublime evokes:

The field of the sublime was comprised of the majestic, the awe inspiring, and the literally overpowering: it spoke the languages of excess and hyperbole to suggest realms beyond human articulation and comprehension. The sublime was constituted through the combined sensations of astonishment, terror, and awe that occur through the revelation of a power greater, by far, than the human. Those commingled sensations result from the rhetorical construction of grandeur (either grandly large or small) and the infinite.³

The visual journeys through outer space of *2001*, *Contact*, and *Interstellar* certainly provoke those feelings. They thrust the hero and the viewer in front of the inconceivable, the excessively grand, and the infinite. Bukatman notes that this seems to be the function of science fiction: to “create the boundless and infinite stuff of sublime experience, and thus to produce a sense of transcendence beyond human finitudes.”⁴ This seems to be the function of the sublime as well as it often elevates and pushes the viewer towards a transcendent state. Bukatman continues:

The sublime initiates a crisis in the subject by disrupting the customary cognized relationship between subject and external reality. It threatens human thought, habitual signifying systems and, finally, human prowess: “the mind is hurried out of itself, by a crowd of great and confused images; which affect because they are crowded and confused.” The final effect is not a negative experience of anxious

confusion, however, because it is almost immediately accompanied by a process of appropriation of, and identification with, the infinite powers on display. The phenomenal world is transcended as the mind moves to encompass what cannot be contained.⁵

The sublime overwhelms us with feelings of awe and then it forces us to transcend our current state by shattering our conception of it in the face of a new, inconceivable image and state. The mind empties almost in submission to the phenomenal world in front of it. The science fiction film evokes the sublime to bring the character and the viewer to a new, transcendent, and evolved state.

The sublime sequences within science fiction films, then, attempt to visually awe and transcend us and the character on screen to a new place “beyond human finitudes.”⁶ The visual effects of these sequences function to bring us into the totally alien, the totally unknown. We feel wonder and awe as we are transported to these new places and states. The outer space film lends itself uniquely to this form of invoking the sublime; just as the landscape painters felt and depicted it in the limitless horizons of nature, outer space’s literal limitless horizons are invoking it in all who seek to see it. In her book, *Picturing the Cosmos*, art historian Kessler explains how the images from the Hubble Space Telescope “invoke the sublime and...encourage the viewer to experience the cosmos virtually and rationally, to see the universe as simultaneously beyond humanity’s grasp and within the reach of our systems of knowledge.”⁷ Real images from space are invoking the same feeling in viewers that landscape painters felt with nature and attempted to convey with their paintings. It is no wonder that outer space invokes the sublime; the horizon of a sea is infinitesimal compared to the infinity of the

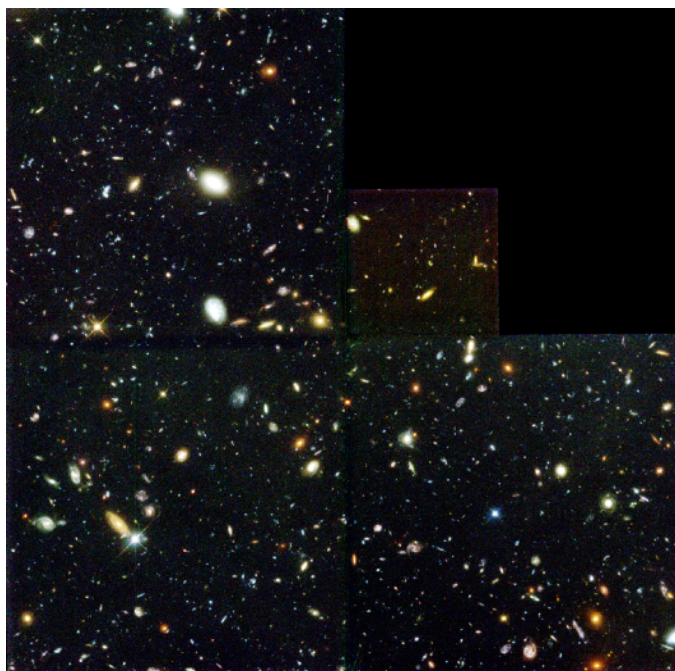


Figure 5.1 - The Hubble Deep Field captured this image from $1/24,000,000$ of our sky. Neither image nor the knowledge that it contains 3000 galaxies can truly convey its actual scale.

universe. It literally has no known bounds. To consider that each speck of light in our night sky contains a sun as magnificent as ours and planets rotating it that can be more massive than our planet is unimaginable and overwhelming. Contemplating the universe is a ready source of the infinite for us. When the Hubble Deep Field telescope focused on a infinitesimal dark patch in our sky, it found over 3000 galaxies hidden within it.⁸

Words do not convey the true infinitude of the cosmos. The night sky conveys grandiosity, but not to the real scale of what it actually is. Reading “3000 galaxies” does not truly impart onto us how exponentially more massive that is than our planet and existence. We can look at that image from the Hubble telescope and try and imagine, but it does not give us a real sense of the relative magnitude of that image. We cannot feel it within ourselves. Outer space films attempt to visualize this for us and they can impart

this grandiosity and sublimity within our bodies through their visual and auditory cues on screen. They draw inspirations from the real sublime of outer space, and make it understandable and visual for us. They help us transcend our current conception of reality and unveil a vast and infinite new one. Sobchack corroborates this saying:

The [science fiction] film gives us images--even if manufactured--of the immense and the infinitesimal. Extrapolating from known and accepted science, these film images derive their power to induce wonder in the viewer not from the imaginativeness of their content, but from the imaginativeness of their stance and scope. We don't marvel that there are such things as planets; we marvel at the fact that we can see them in a way which transcends our own human size and physical limitations. Those images which awe us, stun us, do so not merely because they seem meticulously authentic but because they alienate us from our corporeal selves, from human notions of time and space. It is in this sense that they are truly alien visualizations although based on known scientific realities.⁹

Outer space films extrapolate from the known, our scientific knowledge of the cosmos and images familiar to us, and combine them with the inconceivable to induce within us feelings of wonder and awe. These images transcend our physical conceptions of ourselves by separating us from them and inviting us to inhabit the cinematic reality before our eyes. *2001*, *Contact*, and *Interstellar* all have sequences which attempt to accomplish just that. They invoke the sublime in both the character journeying and the audience on the journey with them, and through this sublime display we are invited to transcend just as the character in the film transcends.

Scott Bukatman compares these sequences to kaleidoscopes saying both “create vertigo by scrambling ordinary perceptions.”¹⁰ He characterizes the sequences by a number of common aspects: “a first-person camera engaged in a relentless movement of forward penetration, distortions of the visual field, and a distended sense of time...These are not so much journeys to other places or societies as flights from the strictures of instrumental reason.”¹¹ Bukatman wrote this analysis in regards to *2001* but it characterizes *Contact* and *Interstellar* well. He is arguing that these sequences function like kaleidoscopes by scrambling our normal visual, auditory, and kinetic sensations. They scramble the cues we use to internalize the cinematic reality within our own bodies, and function like kaleidoscopes to give us new perceptions with the same pieces.

The stargate sequence in *2001*, the strange visual feast that appears as Bowman reaches Jupiter, is where kaleidoscopic perception takes over the narrative and the viewer. Bowman is thrust into a journey “beyond the infinite;” he is relentlessly moving forward in some singular direction towards a new reality. The visual field is transformed into an endless array of moving light, distorted past any recognizable shape we are able to comprehend. The narrative comes to a screeching halt as we leave the “strictures of instrumental reason.” The visuals were created by Douglas Trumbull through slit-scan animation and look and feel like an actual kaleidoscope. The stargate sequence is immediately preceded by the monolith, the same monolith that provoked the transcendence in the primordial man towards us.

We only see the kaleidoscopic effects for a few seconds before the camera focuses on Bowman’s face and we watch his face change from his usual stoicism to overwhelm and awe. Bowman’s facial change establishes the departure from reality that we will now



Figure 5.2 - Bowman's overwhelmed face in the first moments of the stargate sequence

undergo. Even as Hal revolted and Bowman's prospects of survival were slim, he remained stoic and determined. His reaction, now terrified, emphasizes the departure from reality and movement into a sublime experience for him. The cutaways to his face do not diminish our experience of the sublime; we are voyagers just as much as Bowman is. Just as we lost our cues to gravity with Floyd, we lose our cues to reality in the stargate sequence. Bowman and the audience are taken through patterns of light and color. Neon lights envelop the screen as we travel towards a limitless horizon and their textures defy any traditional images of patterns. Bowman's face is slammed on the screen in brief subliminal moments emphasizing his and our altered state. We see his eye filtered in unnatural colors and then cut away to the kaleidoscopic cosmos again which now mirrors the shape of his eye. We move towards slowly flowing abstract colors that look like the cosmos distorted in a mixing bowl. Ligeti's *Atmosphères* further emphasizes a departure from reality with its dissonant tones, especially when contrasted with the Strauss' pieces from the earlier parts of the film. The abstract displays of light suggest both another reality but yet one within our universe and outer space. These

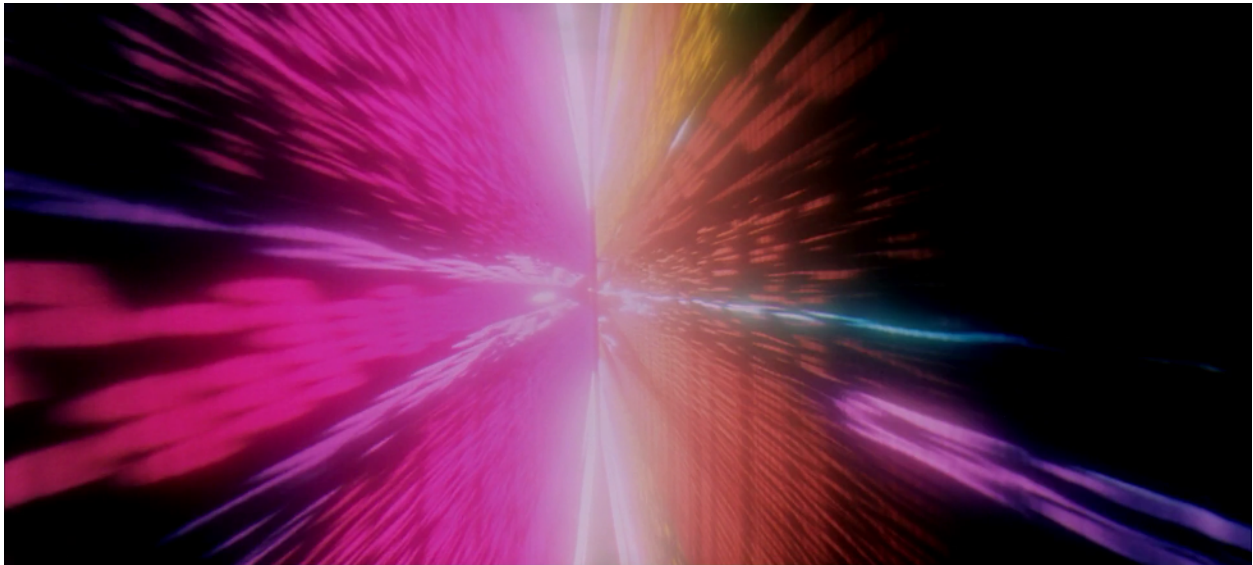


Figure 5.3 - *2001's* stargate sequence

displays may have a meaning, such as the diamonds floating above a layer of light, but it is unbeknownst to us. The sequence moves towards tinted Earth-like landscapes suggesting the arrival at another world. This world is familiar yet vastly different. The sequence ends on Bowman's eye, blinking through different lights before arriving back at his normal color, changed and ready for his next journey.

Bowman is undeniably experiencing the sublime during the stargate sequence and we are invited to as well. Like the landscape sublime, we are drawn into the limitless horizons and the grandeur of this cosmic nature. We struggle to grasp what lies "beyond the infinite." Our current conscious mode of understanding is eradicated in favor of a purely visual experience, one that takes us out of the confines of the narrative experience and into a visual mode. The camera drifts forward relentlessly creating the feeling of a kinetic forward motion into and beyond the infinite. To ascribe a meaning to this sequence may be an oversimplification, but it seems clearly as a visualization of a space beyond human conception. In the beginning of the film, the monolith seems to inspire the apes to take up the bone as a weapon, and begin the course of human history.

It seems then that the monolith once again inspires humanity to move towards the next level. We at our current state of consciousness can look back and see the apes as primitive, but the apes cannot look ahead and see themselves as primitive. This is perhaps what Kubrick is attempting to portray in this sequence. The monolith pushes Bowman towards the next stage of humanity, a stage that has not happened yet. Kubrick in an interview says from our current frame of reference “an encounter with an advanced interstellar intelligence would be incomprehensible.”¹² The stargate sequence is a visualization of that, an unknown that humanity cannot comprehend. Invoking the sublime in Bowman makes complete sense because the sublime is a visual representation of transcendence, of breaking past the current human consciousness.

With that meaning in mind, I also think the stargate sequence defies meaning and should be seen as a visual experience more than a visualization of a space beyond human comprehension. As noted previously, Kubrick intended for *2001* to be a visual film. He wanted the sequences to be ambiguous because “it allows the audience to “fill in” the visual experience themselves...Reactions to art are always different because they are always deeply personal.”¹³ My understanding of the sequence is partially the explanation above: it is a visualization of an experience beyond human consciousness. But to assume or imply that is the only meaning would be to limit the power of the sequence. Ultimately it is an attempt to invoke the sublime within the viewer, and the sublime varies from person to person.

After Bowman exits the stargate sequence he finds himself in a bedroom. This bedroom is strange yet familiar; the bedroom is familiar in the sense that it is a bedroom with the things bedrooms have, decorated in Louis XVI style, yet strange because it is

mixed with a paneled white light floor and it is placed somewhere beyond Jupiter and the infinite. The known elements are juxtaposed with the unknown elements to create a shocking experience for both Bowman and the audience. The Louis XVI style is interesting because of its dated nature, especially within a futuristic film. Kubrick combines the past, present, and future to create a surreal liminal space.

This bedroom sequence is remarkably straightforward in plot: Bowman lands in the bedroom, sees himself standing in his spacesuit through the window of his spacecraft, older, and then becomes that older version of himself. He sees himself in a mirror, and then he sees himself eating at a table. He is perhaps older and out of his spacesuit and in a robe, and he becomes himself eating at a table. I describe it as he becomes himself but this could apply a false meaning: we take his point of view and then he disappears. He notices himself, even older in bed, and then becomes himself in bed. He sees the monolith towering above him and then he becomes a bright embryo hovering above the bed. This embryo then hovers above Earth and the film ends. The bedroom could have a number of allegorical meanings, best shown in *Kubrick's 2001: A Triple Allegory* where author Leonard Wheat dives deep into any and all symbolism the film may have,¹⁴ but to explore his analysis would lengthen this argument unnecessarily. For the purpose of the bedroom's meaning towards the sublime and human evolution, I would point to Roger Ebert's excellent review of *2001* where he writes:

The bedroom also provides a suitable backdrop while Kubrick's man grows older and dies. Why can't it be just that - a backdrop? Poets put lovers under trees, and nobody asks where that tree came from. Why can't Kubrick put his aging man in

a bedroom? This is what literary critics might call a non-descriptive symbol - that is, the bedroom stands for a bedroom. Nothing else.¹⁵

The bedroom and its unusual placement is a backdrop for Bowman's transition towards a higher being. Where the stargate sequence was Bowman's experience of a higher consciousness, eradicating his old experience as a human and transcending him, this bedroom sequence is where his humanity dies so he can become a higher being. Kubrick confirms that the bedroom is definitely a backdrop for Bowman's evolution in his plot summary of the section:

When the surviving astronaut, Bowman, ultimately reaches Jupiter, this artifact sweeps him into a force field or star gate that hurls him on a journey through inner and outer space and finally transports him to another part of the galaxy, where he's placed in a human zoo approximating a hospital terrestrial environment drawn out of his own dreams and imagination. In a timeless state, his life passes from middle age to senescence to death. He is reborn, an enhanced being, a star child, an angel, a superman, if you like, and returns to earth prepared for the next leap forward of man's evolutionary destiny. That is what happens on the film's simplest level. Since an encounter with an advanced interstellar intelligence would be incomprehensible within our present earthbound frames of reference, reactions to it will have elements of philosophy and metaphysics that have nothing to do with the bare plot outline itself.¹⁶

He confirms that this is indeed Bowman's passage towards the "next leap forward of man's evolutionary destiny." It still scrambles our perceptions of what is normal, and the visual meaning of the scene may have nothing to do with the actual plot itself. If the

stargate sequence is a visual kaleidoscope than perhaps the bedroom is a symbolic one: elements of the familiar and completely alien are scrambled together to make an environment full of familiar cues absolutely surreal.

Kaleidoscopic effects take over *Contact* as Ellie travels across the universe in the mysterious pod. *2001* inspired this sequence but there are plenty of notable differences. Although meant as a visual experience, the sequence is also bathed in the rational: she travels through a wormhole, sees Vegan constellations and other natural cosmic phenomena, and lands in a ethereal space drawn from her memories. All of these are completely plausible explanations for the visual voyage she undergoes, unlike *2001*'s beyond the infinite which makes no rational effort to explain itself.

As the machine in *Contact* is turned on and thrust into motion, it emanates a wondrous bright white light that creates awe in the viewers in the nearby control center. Ellie descends into the machine and is hurdled across outer space through a wormhole. Like the stargate sequence, we are invited to empathize with Ellie's reaction as she navigates this otherworldly experience. She was not as stoic as Bowman, but like him her demeanor and facial expressions have changed completely. She is experiencing awe in the face of the sublime. Similar to the stargate sequence, *Contact*'s wormhole features vivid colorful beauty as if painting with light. The light is organized into a vortex to visualize a wormhole with Ellie and her pod traveling through it. Undoubtedly this sequence falls within Bukatman's definition of a kaleidoscopic journey. Ellie moves relentlessly forward penetrating the unknown. The visual field is distorted into a vortex of color and light with brief explosions of cosmic beauty. Ellie's sense of place and time are distended and leaving Earth for a few seconds was ten hours. Not as much of a

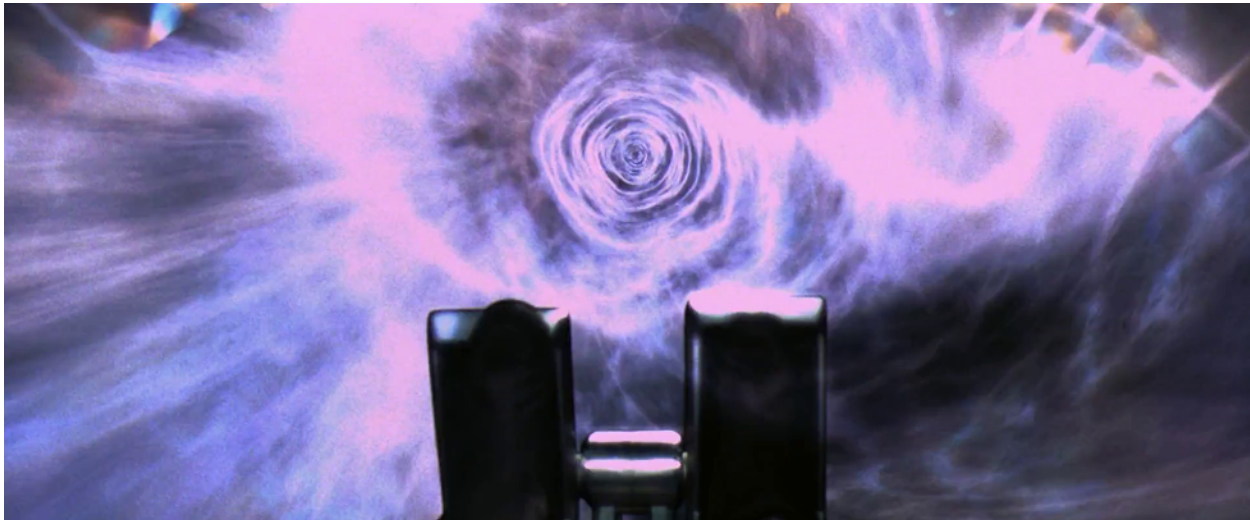


Figure 5.4 - We descend with Ellie into the wormhole

departure from the “strictures of instrumental reason”¹⁷ as *2001*, Ellie still leaves the known and rational world only able to justify her experience through faith.

Ellie is violently shaken adding a layer of kinetic sublimity to her journey. The visuals cycle from kinetic intensity to sublime beauty: she is dragged through the wormhole, and then the pod stops to offer her a calm gaze at the natural beauty, and then she is suddenly thrown again into the violent wormhole travel. We experience this intense journey with her, somewhat as her. As Ellie initially drops, the camera focuses on her face and then reverses from her perspective as she falls down through the wormhole. We feel as if we are falling too having taken on the motion of her body and as a continuous dropping motion takes over the widescreen image. As she shakes intensely, amplifying the kinetic energy of the journey as she flings across the universe, we feel it within our seats heightening our kinetic connection to her journey. The pod makes aerodynamic and friction noises as it travels through the wormhole, probably unrealistically,¹⁸ but they provide auditory cues that make us feel the speed that the pod is going. Ellie attempts to rationalize the experience, making conjectures and hypotheses, but the journey transcends her cognitive state and her consciousness



Figure 5.5 - Ellie's consciousness literally rebels against her

literally rebels against her. She clings to her rational mind and her face, possibly soul, rips from her in opposition saying simple and awe-inspired statements such as “I had no idea” or “Oh God!” This is a clear visualization of a sublime inspired movement from rational consciousness to a space beyond. Further, these are taken directly from the end of the journey when she is awestruck in the face of sublime cosmic beauty, and no longer attempting to rationalize what she sees. The violent shaking is a result of a human addition to the machine, and serves as a symbol of human consciousness. She does not free herself from the shaking chair until she stops rationalizing the journey. Once free from the chair she stops shaking and simply is, experiencing a space beyond human rationalization. This is immediately followed by her most sublime moment yet and we watch her in complete awe and hear her rationality dissolve as she says: “Some celestial event. No, no words. No words to describe it. Poetry. They should have sent a poet. It’s so beautiful. Beautiful. So beautiful. So beautiful. I had no idea. I had no idea. I had no idea. I had no idea. I had no idea.” She repeats “I had no idea,” her only way of communicating the intense feeling she has in the face of the sublime beauty of the



Figure 5.6 - Ellie experiences the sublime

cosmos. The cosmic images during this sequence are indeed incredible; the light is amplified into a brilliant gold with millions of stars within view. We see the sublime with Ellie, and her lack of words speaks for ours.

Ellie lands on a beach similar to the drawing she drew as a child. More surreal is the alien entity taking on the form of her father on this beach. She realizes that this is a creation from her mind, bringing this unknown into the known, but the surreal visual tension remains. Far less surreal and far more explained than *2001's* bedroom sequence, the structure of Ellie's journey and then beach conversation mimic *2001's* stargate and bedroom sequence. The stargate sequence and Ellie's journey are both kaleidoscopic effects and utterly sublime experiences, and the following scenes seem to be a reaction and perhaps unwinding from them. The first scenes elevate and break through the consciousness that has been established previously in the film, and the second scenes are the reactions and unfolding of this new consciousness. There is a third part to each of the sequences as well: the return. Ellie returns back to Earth through a wormhole, where Bowman returns to Earth as a star child. This structure of journey and

then reaction is similar to Cooper's journey into Gargantua in *Interstellar*, but noticeable differences remain.

Where *2001* and *Contact* immediately enter a kaleidoscopic sequence, *Interstellar* descends into blackness first. Dust and particles slowly overtake his spaceship as if reality begins to be created in this new space. Dust mixes with flame to create an abstract and minimalist painting of light. The beginning of this sequence is similar to *2001* and *Contact* as the camera focuses intensely on Cooper face. His face, like Bowman's and Ellie's, shifts from rational to overwhelmed. He speaks to himself in rational observations, similar to Ellie, which are quickly overcome by groans and the intensity of the sequence. His spacecraft jolts violently too and combined with Cooper's reactions we feel the visceral kinetic motion in ourselves. The camera focuses directly on Cooper's face as he screams in overwhelm, in a visual allusion to the similar shot from



Figure 5.7 - The dust within Gargantua forms an abstract and minimalist landscape



Figure 5.8 - Cooper's overwhelmed face recalls Bowman's in *2001*

2001. Unfortunately, Nolan does not let the audience experience this sublime moment completely as he immediately cross cuts to Murph foraging through her old bedroom. Although this choice links Cooper's destiny with Murph's and family love as a tie across the universe, it ultimately diminishes the experience for the audience. We are relieved from an intense visceral motion from Cooper's descent into darkness while Murph patiently examines her things. This is also a major difference from *2001* and *Contact* which feature no interruptions whatsoever allowing the viewers to totally encompass themselves within the visual moment.

It is still an intense moment, however, as Cooper ejects from his spaceship and quietly falls into the grand unknown of the tesseract. As discussed previously, the visual and auditory cues transport us with him as he falls through space. His descent into the tesseract is a kaleidoscopic journey and falls within Bukatman's definition. The camera tethers to Cooper's body and we can feel a first person perspective as he relentlessly falls

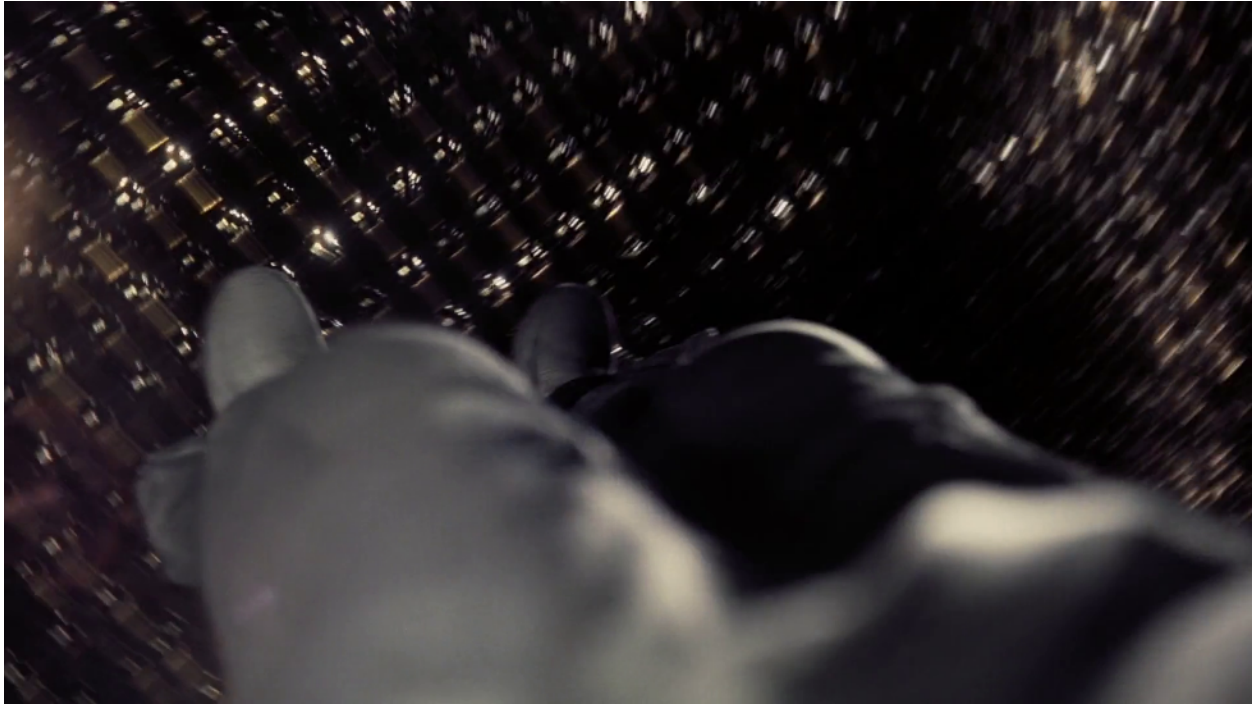


Figure 5.9 - Cooper falls into the kaleidoscopic tesseract

and penetrates into the tesseract. The tesseract is a distortion of the visual field by extracting the three dimensions of our reality and lining them upon a fourth dimension that Cooper can move freely through. The tesseract is perhaps the most kaleidoscopic of all the films being a scramble of our three dimensions. It is a literal kaleidoscope across time and space, as fractals of spacetime are combined into a geometric shape. Like *2001*, it was created using slit-scan animation.¹⁹ Time is distended, again literally, being stretched out in a physical manner that Cooper can travel upon. Like *Contact*, this sequence is bathed in rational explanation but to Cooper it is a complete departure from the strictures of instrumental reason. The tesseract is, of course, completely logical but a grand unknown when first encountered. Gradually Cooper and the audience connect the dots and bring it from the unknown to the known: it is actually a physical manifestation of all of the moments in Murph's bedroom where Cooper can transmit data through gravity and save the human race. Kip Thorne verifies that the science checks out.²⁰

Rational explanation seems to be a key difference between *2001's* and *Contact* and *Interstellar's* sublime sequences. *2001* remains a visual experience, with possible allegorical meaning but no definitive answers, but *Contact* and *Interstellar* both have extremely rational answers for all of the unknown phenomena shown. *Contact* and *Interstellar* tell us the meaning of their unknowns, where *2001* leaves it up to the viewer to decide. Regardless all three attempt to initially invoke the sublime by their grand unknowns.

Cooper realizes he is trapped in some strange design of his daughter's bedroom and cries in overwhelm. He witnesses his mistake as if trapped in a purgatory and he attempts to communicate with his past self in a futile attempt to absolve his guilt. The tesseract functions as a perfect visual manifestation that all a parent leaves behind is their kids. Cooper is literally helpless to watch his daughter, only able to make small and slight motions to influence her, and only if she notices. It takes Murph over thirty years to make the connection between Cooper and her bedroom wall. It is only then that TARS makes contact with Cooper and the audience, ready to rationalize this great unknown and move the narrative forward. TARS serves as a marker showing Cooper's completion of the journey and beginning of the reaction. Cooper is changed by his sublime experience and ready to internalize it, to make it known similar to what Ellie does, and ready to take action. Cooper's transcendence is not as radical as *2001's*; he does not become a star child. He does, however, transcend the physical confines of humanity, albeit temporarily, and help humanity transcend the limitations which were trapping us on Earth. He resolves his guilt for leaving his family and sends his love across time and space. Humanity's transcendence is then alluded to by Cooper's sudden realization that

the fifth dimensional bulk beings are actually humans. Once Cooper accomplishes his destined purpose, transmitting the gravitational data to Murph, the tesseract dissolves into a brilliant light and Cooper enters the third stage of the journey: the return. He is washed in beautiful white light and passes calmly back to our solar system.

Human Destiny

The invocation of the sublime in these films serves clear narrative purposes and each director uses it to convey a deeper meaning for their film. Yet it is a strange contrast: science fiction and outer space science fiction in particular comes from a philosophy of mankind championing nature. The Apollo program was a feat of human achievement, where for the first time in the history of Earth had an organism overcome its gravity. *2001* is a film of nature conquered and is set almost entirely within artificial confines of humanity's making. Similarly, Cooper and humanity overcome the limits of Earth and other planet's natures in their quest against extinction. Ellie's travel to another dimension is a testament to humanity's prowess by understanding and building the machine and humanity's resilience amid it's own self sabotage. All three of these films feature humanity rising to the occasion yet each also feature a climax with a clear submission to cosmic nature.

Bukatman points to the sublime's return as a product of intense technological development. The sublime's prominence in the nineteenth century was a reaction to the "increasing secular rationalization of modern life" and the "power of industrial technology."¹ The late twentieth and twenty first century has been similar, including the development of space flight, and the sublime's return may be a response to this vast power of technology. It seems to be a paradox that humanity wants both to conquer the unknown with technology yet be enveloped by the unknown through the sublime. It is because the sublime and human progress are intertwined, and both seem to come from an innate human desire for transcendence.

The sublime elevates and these films use it to demonstrate the elevation of humanity and speculate on our destiny. The classical idea of the sublime as put forth by Longinus was intertwined with human elevation. He wrote that it “emphasizes its power to enthrall and elevate the mind of man...our soul is uplifted by the true sublime; it takes a proud flight, and is filled with joy and vaunting, as though it had itself produced what it has heard.”² The sublime has a vicarious nature, invoking feelings of awe within the spectator. When encompassed by the sublime, we are encompassed by the true unknown; it often invokes a space that is beyond our human comprehension. Science fiction, and especially outer space science fiction, gravitates towards themes of the beyond: beyond our solar system, beyond human comprehension, even beyond humanity. This inclination is naturally inspired by its fascination with and entrenchment within the unknown. The outer space film shows us the boundless and infinite stuff of the cosmos, and we feel awe in front of it. It links transcendence with the visual image similar to the sublime; the natural speculations of the future of humanity and what lies beyond are merged with the actual images and imaginings of what lies beyond. It invites us to imagine grand spaces past human consciousness and creates magnificent and spectacular special effects sequences to visualize this. The outer space film, then, functions as a mythology for human destiny.

2001, *Contact*, and *Interstellar* can all be considered modern mythologies for human destiny. They play with human finitudes and dare to explore the possibilities of a place beyond human consciousness. We travel with them too, and go places never seen before and experience sublime moments we have never felt before. The characters in these films are confronted with grand unknowns thematically, visually, and with their

own human consciousness, and we are confronted with these as well. The sublime moments of these films are visualizations of these gaps in consciousness, and their reactions become our reactions. They experience the completely alien and transcend the human experience to a new place. *2001*, *Contact*, and *Interstellar* all explore what is beyond human life on Earth and where we are going as a species. Each provide their own possibility and each encompass humanity's next evolution.

2001: A Space Odyssey is an odyssey across our existence from the far past to the far future. Kubrick's inclusion of primordial man in the beginning of the film provides a "before" for us to consider and sets us up for the ultimate "after" which is Bowman's evolution in the climax of the film. When we see the primordial man toss his bone tool into the air and it is transformed into a spaceship, we understand intuitively the link between the two. Kubrick avoids using words to signify this transition causing us to internally feel the connection and in doing so he also makes a profound statement on man and tool. This cut can be interpreted to say that there is no difference between the bone we first used to smash things and the spacecraft we use to fly out of Earth's orbit.³ They are both tools on a single playing field of human intelligence (the far ends of that playing field, of course). We see that the bone is humanity's first tool and jumping past the present it seems the spacecraft is humanity's last. If tools are what have defined us throughout recorded history, then perhaps Kubrick is suggesting the next step in humanity's evolution is a stage beyond tools.

HAL serves as humanity's ultimate tool, a creation of the pure mind to the point where it mimics the worst of our mind, and it makes sense that it is the foe Bowman must overcome to fulfill his and humanity's destiny. Strangely the most emotional

character in the entire film, his voice fluctuates and he exhibits traits of paranoia and later fear of life. By contrast, Bowman and Poole function almost as machines quietly performing their duties with complete rationality. After HAL has left Bowman to die outside the spacecraft and murdered Poole before his eyes, Bowman remains level headed and determined to make it into the spacecraft and turn HAL off. As HAL pleads and begs for his life Bowman is emotionless turning off HAL's consciousness as if it was a routine. The primal nature of primordial man contrasted with the extreme rationality of spacefaring man seems to be two sides of humanity that are separated from each other. This contrast cannot be an accident, and HAL seems to be the clue between the two. He has no flesh yet he mimics the side that humanity has repressed in an effort to explore the universe. This may explain the later sequence, when Bowman finally sheds his cool rational self and returns to the human condition, which he can later transcend. His stoic face is removed with awe as he is blasted beyond the infinite. Growing old, eating, and eventual death are features of the human experience and shown in that final bedroom scene. Kubrick could be suggesting that humanity has ventured too far from our primal self, and merging the rational with the primal could lead to humanity's evolution.

Although *2001* is a film that leaves its meaning open to the viewer, it seems clear it does concern itself with human destiny and evolution. The embryo that later hovers above Earth and Kubrick's own plot summary as Bowman being "reborn, an enhanced being, a star child, an angel, a superman, if you like, and returns to earth prepared for the next leap forward of man's evolutionary destiny" prove at some level that this film is a visualization of this journey. Further, the inclusion of Richard Strauss's *Also sprach*



Figure 6.1 - The starchild orbiting Earth

Zarathustra is a clear reference to Friedrich Nietzsche's philosophical novel of the same name. This novel deals with the idea of the *Übermensch* which translates to either “beyond man” or “superman” both apt descriptions of Bowman’s final form. *Also sprach Zarathustra* plays at key moments of the film related to humanity’s evolution, most notably when the primordial man uses the tool for the first time and as the star child hovers above Earth. The monolith seems to be the key of moving humanity forward. Primordial man touches the monolith and begins to use tools. Floyd’s team touches the monolith and sends Bowman to Jupiter where he enters his voyage into his evolution. The monolith could be an advanced intelligent lifeform that guides humanity towards its evolution; first in our days as primordial man, and later in our days as civilized man towards something beyond. Clarke’s novel clearly states that the monolith is an unseen alien race which encourages the development of intelligent life, but the film leaves the meaning open for the viewer.⁴ Ultimately the film leaves humanity’s destiny open for the viewers interpretation.

Where *2001* has subtly and open-endedness with its meaning of human destiny, *Interstellar* and *Contact* do not. Both films are overt with *Interstellar* going as far as telling you in the dialogue that this is what it is about. This is unsurprising since they are comparatively more overt films and leave less for the audience's interpretation. *Contact* is a film about humanity answering the call towards becoming a higher level space faring species, and all of the difficulty that humanity's nature brings towards accomplishing that goal. The alien entity that Ellie sees as her dad overtly explains that the machine is humanity's first steps towards entering the intergalactic community, that is how it has always been done, and that in time humanity can take another step. He provides us with the exposition behind this machine's origin, but it is overshadowed by the emotional resonance of Ellie reuniting with her father. It is strange that the scene functions primarily as a reunion with her father over a discussion of humanity's next steps as a civilization. One reason could be that since the film attributes Ellie's father with her SETI fascination, it is filling the emotional hole opened by his death. By reuniting with her father after traveling to the ultimate radio signal, she has perhaps lived up to his dreams better than he could have hoped. Still, the scene chooses to focus more strongly on their reunion than the fact that she is on a distant planet with an alien species. This takes away from the believability of the trip and reinforces the idea that it was all a dream of Ellie's, despite the film taking a definitive step to say it was not.

The importance of Ellie's story being doubted is to serve as a climax of the film's conflict between rationality and religiosity. Rationality and religiosity are both means of interpreting the unknown, and throughout the film are depicted as conflicting views. The conflict between rationality and religiosity, science and religion, is evident at every

step of the film. Pundits on talk shows are shown debating whether the signal from Vega is a victory for science or for religion. A religious fanatic destroys the first machine believing it was against God. Palmer Joss describes an intense religious experience he has and Ellie implies that he may have imagined it, seeing that there was no definitive evidence. Joss compares his certainty that God exists with Ellie's love of her father, saying that she knows he loves him but she cannot prove it. Love as an unmeasurable but quantifiable force plays heavily in *Interstellar* as well, and serves here as a symbol of faith for Ellie. Ellie firmly believes in rationality and often takes a skeptical stance in the face of faith, particularly around Palmer Joss. It is ironic, then, that in the end she can only rely on the point of view she once firmly criticized. All of the evidence against Ellie is quite plausible, and the appearance of the beach and her father points towards a dreamlike experience. She admits this and in the face of Kitz's inquisitions agrees that she would be skeptical too, but she knows it is real and must have faith in herself. Perhaps the film is suggesting that these two supposedly conflicting ideologies can co-exist and that one is not necessarily correct. Perhaps the film is suggesting this is what humanity's next step towards evolution entails.

In *Interstellar* Cooper tells TARS that the bulk beings are actually humans. Cooper says "they're not beings, they're us. What I've been doing for Murph, they're doing for me, for all of us." TARS replies "Cooper people couldn't build this" to which Cooper answers "No, not yet, but one day. Not you and me but a people, a civilization that's evolved past the four dimensions we know." Cooper very clearly tells us the film's plot revolves around our future species saving us from extinction, and us saving them from never existing. Cooper's voyage into the black hole is a key step in humanity's

destiny, similar to Bowman's voyage beyond Jupiter and Ellie's journey to Vega. *Interstellar* is a story of humanity being connected through time, so it seems logical that later generations of humanity would help save their ancestors by morphing time and space. Generations play a subtly important role in the film, and it is helpful to consider how many generations exist in the film. *Interstellar* begins with actual footage from Ken Burn's *The Dust Bowl* and continues by showing Cooper's parent's generation with Cooper's father in law, to Cooper's generation, to Cooper's children's generation, to their children's generation, to finally Cooper's children's great grand-children's generation in the scene when Murph and Cooper are reunited. Generational love is what moves humanity forward in *Interstellar*. The two human antagonists of the film, Dr. Mann and Professor Brand, both stand in opposition to this idea. Dr. Mann argues with Cooper that our love of humanity does not extend past our immediate familial connections.



Figure 6.2 - Human ancestry and the generations of a family are a motif in *Interstellar*

Professor Brand quietly believed this, giving up and sabotaging his efforts towards fixing humanity's survival issue.

Like *2001*, *Interstellar* concerns the destiny of humanity while exploring the nature of humanity and its primal versus rational origins. This is seen with the inclusion of Dr. Mann who argues that humanity has yet to escape its evolutionary instinct of survival, and succumbs to it himself. He rationalizes his actions as for the good of humanity, but he is most villainous character in the entire film, and probably the one who has succumbed most to the primal desire of survival. By trying to resist and overcome human nature he destroys himself mentally and literally. Compare this with the use of robots in *Interstellar* whose pure rational minds are consistently inferior to human intuition. Cooper takes control from TARS and CASE in the film often and it seems he is more successful because of it. In the beginning of the film we watch as Cooper's launch fails due to a computer overriding him and shutting down the ship and the film makes a point of Cooper using his natural human prowess to succeed in situations TARS or CASE deem impossible. Cooper's confidence in his own judgement, especially over a robot's, leads to his incredible successes that eventually save humanity. *Interstellar* focuses on human instinct and suggests that either resisting our primal side (Dr. Mann), or focusing too purely on our rational side (TARS and CASE) leads to failure. Only by embracing the unique combination of the two does Cooper succeed.

Dr. Brand favors her own intuition too, but in a different way than Cooper's. She trusts her own feelings of love over logic and rationality. She suggest love is a real force, drawing from her own love of Dr. Edmund transcending time and space as evidence. She says "love is the one thing that we are capable of perceiving that transcends

dimensions of time and space,” which is a sentiment that becomes true when Murph’s love of her father causes her to pick up the watch with the gravitational data even though they are millions of light years and fifty relative years away from each other. Further, Miller’s planet does turn out to be the right planet, and the planet chosen by logic and rationality is the planet that turns out disastrous. Love is what causes Cooper to send the NASA coordinates and gravitational data back in time, knowing that Murph will find it because she loves him, and that love is indeed what causes Murph to find it. The film brings love, which is portrayed as an unknown supernatural force in the beginning of film, into a known and quantifiable concept. The watch Cooper gifts Murph is a symbol of this and ties together all of the concepts in the film. Cooper uses gravity to alter a timepiece and send a message across space and time, and he knows Murph will find the message because of his love for her. The film suggests that it is this love which makes us truly human, and this love is what will lead us towards our destiny.

Interstellar is about embracing our human instincts and intuition and using those to rise to the occasion. It shows characters succeed when they embrace their love and fail when they deny human nature. This acceptance and embrace of our humanity in the face of adversity makes the Dylan Thomas poem “Do not go gentle into that good night” relevant and Nolan’s excessive referencing to it make sense. The poem argues for us to “rage against the dying of the light”⁵ and calls for those close to the end to cling on and fight. This is *Interstellar*’s belief of humanity: our love is what pushes us forward and we can defeat the impossible with love and conviction.

As mythologies for human destiny, these films serve as visual myths of the future and are informed by our present society and culture. The science fiction film does not

stand alone; it is a product of our thoughts, beliefs, emotions, and fears around technology and the future. Sobchack writes “if science fiction is about science at all, it is not about abstract science, science in a vacuum. In the [science fiction] film, science is always related to society, and its positive and negative aspects are seen in light of their social effect.”⁶ These films are not independent of or exempt from the realities in which they were created. *2001* was filmed in the height of the space race, and its optimism towards human progress is clear with the beautiful creations of humanity at the time. *Contact* represents a globalized, 24 hour news cycle society reacting to an extraterrestrial event. *Interstellar* is mired with our contemporary fear of global warming and climate change, and stands in the face of an anti-science mentality rising in our world. All three of these films are products of their time.

In an article titled “Innovation Starvation” prolific science fiction author Neil Stephenson laments on science fiction’s lack of positive role models in contemporary society. He posits that science fiction acts as a hieroglyph for society and puts forth the two ways that science fiction influences our lives:

1. The Inspiration Theory. [Science fiction] inspires people to choose science and engineering as careers. This much is undoubtedly true, and somewhat obvious.
2. The Hieroglyph Theory. Good [science fiction] supplies a plausible, fully thought-out picture of an alternate reality in which some sort of compelling innovation has taken place. A good SF universe has a coherence and internal logic that makes sense to scientists and engineers. Examples include Isaac Asimov’s robots, Robert Heinlein’s rocket ships, and William Gibson’s cyberspace...such

icons serve as hieroglyphs—simple, recognizable symbols on whose significance everyone agrees.⁷

Science fiction is a sandbox in which we can think of the future, and explore its possibilities. Science fiction stories are the representation of our cultural thoughts, ideas, and fears of the future and technology made real. Science fiction presents us with recognizable ideas and scenarios, hieroglyphs, which we can use to understand the future.

Science fiction is inspired by and inspires our society in a virtuous circle. Krafft Ehrlicke, a member of Operation Paperclip and a scientific influence on the success of the Apollo missions, was inspired to become an engineer at a young age after watching Fritz Lang's *Woman in the Moon*. His experience with that film convinced him of the feasibility of space travel at a time when it was only the wildest dreams of science fiction writers.⁸ *Woman in the Moon* served as a hieroglyph for Krafft Ehrlicke's dreams of the future and influenced his ability to create that future. His actual scientific improvements made NASA's Apollo missions successful and those missions were clear inspiration for *2001*, *Contact*, and *Interstellar*.

The outer space film serves as the hieroglyph for humanity's future out in the stars. Inspired by the actual science of space, these films are a playground of plausibility and an arena in which humanity can explore the ideas of their future and destiny. They contrast the familiar with the alien, the known with the unknown, and create a sense of wonder by visualizing this tension before our eyes. They take us on journeys with their characters, exploring the weightlessness and unique visual nature of outer space, and expose us to the dangers that await. They attempt to visualize the epic cosmic beauty of

the universe with an impossible to imagine scale, and we sit with them in awe as they explore the greatness that lies beyond. Their sublime sequences inspire us to transcend our current consciousness and find a space beyond where we can be reborn. They serve as a mythology we can look to, and use as a guide for our destiny as a species.

Endnotes

Scientific Origins

1. Margaret Rhodes. "The Amazingly Accurate Futurism of 2001: A Space Odyssey". Wired, accessed April 25 2018, <https://www.wired.com/2015/08/amazingly-accurate-futurism-2001-space-odyssey/>
2. Agel, Jerome (1970). *The Making of Kubrick's 2001*. New York: The New American Library, Inc. 321–324.
3. Rhodes.
4. Frederick Ordway. "2001: A Space Odyssey in Retrospect". Visual-memory.co.uk, accessed April 26 2018, <http://www.visual-memory.co.uk/amk/doc/0075.html>
5. "Turning sci-fi into fact". BBC News, January 3rd 2002, http://news.bbc.co.uk/2/hi/uk_news/1247163.stm
6. Rhodes.
7. Craig H Williams et al., "Realizing" 2001: A space odyssey": Piloted spherical torus nuclear fusion propulsion." *Journal of spacecraft and rockets* 39, no. 6 (2002): 874-885.
8. This can be found by examining his Google Scholar profile. Although not a completely exhaustive list it is clear that there are more than 300 unique articles he has authored or co-authored. The number of books can be found similarly.
9. Benjamin Svetkey. "Making *Contact*: The Story behind the controversial space odyssey". Entertainment Weekly, July 18 1997, <http://ew.com/article/1997/07/18/making-contact/>
10. "About the Production". Warner Bros, captured May 17 2001, <https://web.archive.org/web/20010517053600/http://contact-themovie.warnerbros.com/cmp/about.html>
11. NOVA's Secret Life of Scientists and Engineers, *Jill Tarter: Carl Sagan Contacted Me*, video, 3:23, <https://www.youtube.com/watch?v=1-akFLFLgAk>
12. "High Technology Lends a Hand". Warner Bros, captured March 4th 2001, <https://web.archive.org/web/20010304211755/http://contact-themovie.warnerbros.com/cmp/technology.html>
13. Svetkey.
14. "About the Production".
15. John Wilford. "In 'Contact,' Science and Fiction Nudge Close Together". The New York Times, July 20 1997, <https://www.nytimes.com/1997/07/20/movies/in-contact-science-and-fiction-nudge-close-together.html>
16. David A Kirby. *Lab coats in Hollywood: Science, scientists, and cinema*. (MIT Press, 2011). 65-68.
17. Ibid 66.
18. Ibid.

19. Adam Rogers. "Wrinkles in Spacetime the Warped Astrophysics of *Interstellar*". Wired, accessed April 26 2018, <https://www.wired.com/2014/10/astrophysics-interstellar-black-hole/>
20. Ibid. Thorne also writes about it in *The science of Interstellar*.
21. Kip Thorne. *The science of Interstellar*. (WW Norton & Company, 2014), 4.
22. Ibid, 5.
23. Ibid, 9.
24. Ibid, 12-14.
25. Ibid, 59.
26. Ibid.
27. Ibid, 10-12, 83-87.
28. Rogers.
29. Ibid.
30. Ibid.
31. Ibid.
32. Ibid.
33. *2001: A Space Odyssey* does not specify Dr. Heywood Floyd's occupation exactly only hinting that he has a doctorate and was sent to file a report to a "council." Arthur Clarke's *2001: A Space Odyssey* novel specifies that he is chairman of the National Council of Astronautics and in charge of overseeing all American spaceflight operations.
34. Wolfe, Gary K. *The known and the unknown: the iconography of science fiction*. (Kent State University Press, 1979), 5.

The Known and the Unknown

1. Sobchack, Vivian Carol. *Screening space: The American science fiction film*. (Rutgers University Press, 1987), 17.
2. Wolfe, Gary K. *The known and the unknown: the iconography of science fiction*. (Kent State University Press, 1979), 18.
3. Kip Thorne. *The science of Interstellar*. (WW Norton & Company, 2014), 62.
4. Wolfe, 15.
5. Sobchack, 89.
6. This is actually not true. SETI astronomer Seth Shostak says "This wasn't the first broadcast, of course. But it was at a high frequency that might make it through the ionosphere. However, it would have been very low power, and with a non-directional antenna. The idea that aliens might pick it up is pretty far-fetched." Ross

Pomeroy. "Will Hitler Be the First Person That Aliens See?". RealClearScience, September 19 2013, <https://www.realclearscience.com/blog/2013/09/will-hitler-be-the-first-person-that-aliens-see.html>

7. Sobchack, 89.
8. Ibid, 17.
9. Paul Scanlon. "George Lucas: The Wizard of 'Star Wars'". Rolling Stone, August 25 1977, <https://www.rollingstone.com/movies/news/the-wizard-of-star-wars-20120504>
10. Wolfe, 4.
11. Ibid, 5.
12. Ibid, 24.

Outer Space as a Spectacle

1. Visual and special effects are different within the film industry but for the purpose of this chapter I will consider them interchangeable. In this chapter I am focusing on the final image rather than by exactly how it was created. Special effects refers to illusions, visual tricks, or other modifications to create a desired image when the camera is shooting. Visual effects generally refer to creating the desired image in post production using digital or analog means, but may require significant work during shooting to turn out correctly. They are different processes and can have different meanings but they are both means of visualizing the unknown. Rather than writing "visual and special effects" I will choose the one most relevant but I am not excluding the other.
2. Joseph Gelmis. *The film director as superstar*. (Doubleday, 1970). Excerpt accessed online, Visual Memory, accessed April 28 2018, <http://www.visual-memory.co.uk/amk/doc/oo69.html>
3. Ibid. Kubrick says it: "in two hours and forty minutes of film there are only forty minutes of dialogue."
4. "Greatest Visual and Special Effects (F/X) - Milestones in Film". AMC Filmsite, accessed April 28 2018, <http://www.filmsite.org/visualeffects17.html>
5. Annette Michelson. "Bodies in space: Film as carnal knowledge." *Artforum* 7, no. 6 (1969).
6. Ibid.
7. J Bryan Lowder. "How *Interstellar*'s stunning score was made". Slate, November 18 2014, http://www.slate.com/blogs/browbeat/2014/11/18/making_interstellar_s_score_hans_zimmer_s_soundtrack_explored_in_exclusive.html. The video featured in this article is also available on *Interstellar*'s blu-ray extras titled "The Cosmic Sounds of 'Interstellar'".
8. Ibid.
9. Ibid.

10. Ibid.
11. Ibid.
12. It seems the music used for that sequence was not released on the soundtrack otherwise I would have referenced an exact title. The music does not appear again in the film outside that moment so a guess would say it was an intentional nod to *2001*.
13. Michel Ciment. "Kubrick on *Barry Lyndon*". Visual Memory, accessed April 29 2018, <http://www.visual-memory.co.uk/amk/doc/interview.bl.html>
14. Vincent LoBrutto. *Stanley Kubrick*. (London: Faber and Faber, 1998), 308.
15. Roger Ebert. "2001: A Space Odyssey". Roger Ebert, March 27 1997, <https://www.rogerebert.com/reviews/great-movie-2001-a-space-odyssey-1968>
16. This relationship is analyzed in detail in the final chapter of this essay.
17. "1968 : La révolution Kubrick". Cinezik, accessed April 29 2018, https://www.cinezik.org/critiques/affcritique.php?titre=2001_space_odyssey

The Sublime of Space

1. Scott Bukatman. *Matters of gravity: Special effects and supermen in the 20th century*. (Duke University Press, 2003), 93-100.
2. Ibid, 94.
3. Ibid, 91-92.
4. Ibid, 93.
5. Ibid, 92.
6. Ibid, 93.
7. Elizabeth A Kessler. *Picturing the cosmos: Hubble Space Telescope images and the astronomical sublime*. (University of Minnesota Press, 2012), 5.
8. "Hubble's Deepest View of the Universe Unveils Bewildering Galaxies across Billions of Years". Hubblesite, Jan 15 1996, http://hubblesite.org/news_release/news/1996-01
9. Sobchack, Vivian Carol. *Screening space: The American science fiction film*. (Rutgers University Press, 1987), 101.
10. Bukatman, 117.
11. Ibid.
12. Joseph Gelmis. *The film director as superstar*. (Doubleday, 1970). Excerpt accessed online, Visual Memory, accessed April 28 2018, <http://www.visual-memory.co.uk/amk/doc/0069.html>
13. Ibid.

14. Leonard Wheat. *Kubrick's 2001: A triple allegory*. Scarecrow Press, 2000.
15. Roger Ebert. "'2001' -- THE MONOLITH AND THE MESSAGE". Roger Ebert, April 21 1968, <https://www.rogerebert.com/rogers-journal/2001-the-monolith-and-the-message>
16. Gelmis.
17. Bukatman, 117.
18. There is no propagation of sound in outer space, and a wormhole is probably not filled with air. An argument could be made that there is another matter in which sound can travel through but the sounds are similar to that of a plane flying and were probably inspired by air travel.
19. Bill Desowitz. "Inside the Making of the Spectacular Tesseract in 'Interstellar'". Indie Wire, Dec 10 2014, <http://www.indiewire.com/2014/12/inside-the-making-of-the-spectacular-tesseract-in-interstellar-189771/>
20. Kip Thorne. *The science of Interstellar*. (WW Norton & Company, 2014), 246-272.

Human Evolution

1. Scott Bukatman. *Matters of gravity: Special effects and supermen in the 20th century*. (Duke University Press, 2003), 106.
2. Ibid, 124.
3. Interviews with Kubrick and his design team reveal that these spaceships were actually nuclear weapons and the starchild would detonate them. However, this was removed from the film and cannot really be inferred when viewing so I have chosen not to include these facts in my argument. More on this can found in Alexander Walker's book *Stanley Kubrick, Director*. Walker, Alexander, Sybil Taylor, and Ulrich Ruchti. *Stanley Kubrick, Director*. WW Norton & Company, 2000.
4. Arthur Charles Clarke. *2001: a space odyssey*. (Hutchinson, 1968).
5. Dylan Thomas. "Do not go gentle into that good night." (1952).
6. Vivian Carol Sobchack. *Screening space: The American science fiction film*. (Rutgers University Press, 1987), 63.
7. Neal Stephenson. "Innovation starvation." *World Policy Journal* 28, no. 3 (2011): 11-16.
8. Marie Lathers. *Space oddities: women and outer space in popular film and culture, 1960-2000*. (A&C Black, 2012), 2.

Bibliography

Books:

- Agel, Jerome. *The making of Kubrick's 2001*. New York: New American Library, 1970.
- Bukatman, Scott. *Matters of gravity: Special effects and supermen in the 20th century*. Duke University Press, 2003.
- Clarke, Arthur Charles. *2001: a space odyssey*. Hutchinson, 1968.
- Homer. *The odyssey*. Vol. 28. Collector's Library, 2011.
- Kessler, Elizabeth A. *Picturing the cosmos: Hubble Space Telescope images and the astronomical sublime*. University of Minnesota Press, 2012.
- Kirby, David A. *Lab coats in Hollywood: Science, scientists, and cinema*. MIT Press, 2011.
- Lathers, Marie. *Space oddities: women and outer space in popular film and culture, 1960-2000*. A&C Black, 2012.
- LoBrutto, Vincent. *Stanley Kubrick*. London: Faber and Faber, 1998.
- Sobchack, Vivian Carol. *Screening space: The American science fiction film*. Rutgers University Press, 1987.
- Thorne, Kip. *The science of Interstellar*. WW Norton & Company, 2014.
- Wolfe, Gary K. *The known and the unknown: the iconography of science fiction*. Kent State University Press, 1979.

Articles and Web Resources:

- “About the Production”. Warner Bros, captured May 17 2001, <https://web.archive.org/web/20010517053600/http://contact-themovie.warnerbros.com/cmp/about.html>
- Desowitz, Bill. “Inside the Making of the Spectacular Tesseract in ‘Interstellar’”. Indie Wire, Dec 10 2014, <http://www.indiewire.com/2014/12/inside-the-making-of-the-spectacular-tesseract-in-interstellar-189771/>
- Ebert, Roger. “2001: A Space Odyssey”. Roger Ebert, March 27 1997, <https://www.rogerebert.com/reviews/great-movie-2001-a-space-odyssey-1968>

- “High Technology Lends a Hand”. Warner Bros, captured March 4th 2001, <https://web.archive.org/web/20010304211755/http://contact-themovie.warnerbros.com/cmp/technology.html>
- “Hubble's Deepest View of the Universe Unveils Bewildering Galaxies across Billions of Years”. Hubblesite, Jan 15 1996, http://hubblesite.org/news_release/news/1996-01
- Gelmis, Joseph. *The film director as superstar*. Doubleday, 1970. Excerpt accessed online, Visual Memory, accessed April 28 2018, <http://www.visual-memory.co.uk/amk/doc/0069.html>
- “Greatest Visual and Special Effects (F/X) - Milestones in Film”. AMC Filmsite, accessed April 28 2018, <http://www.filmsite.org/visualeffects17.html>
- J Bryan Lowder. “How *Interstellar*’s stunning score was made”. Slate, November 18 2014, http://www.slate.com/blogs/browbeat/2014/11/18/making_interstellar_s_score_hans_zimmer_s_soundtrack_explored_in_exclusive.html
- Michelson, Annette. "Bodies in space: Film as carnal knowledge." *Artforum* 7, no. 6 (1969): 59. Accessed through online reproduction at: <http://focorevistadecinema.com.br/jornalkubricken.htm>
- NOVA's Secret Life of Scientists and Engineers, *Jill Tarter: Carl Sagan Contacted Me*, video, 3:23, <https://www.youtube.com/watch?v=1-akFLFLgAk>
- Ordway, Frederick. “2001: A Space Odyssey in Retrospect”. Visual-memory.co.uk, accessed April 26 2018, <http://www.visual-memory.co.uk/amk/doc/0075.html>
- Pomeroy, Ross. “Will Hitler Be the First Person That Aliens See?”. RealClearScience, September 19 2013, <https://www.realclearscience.com/blog/2013/09/will-hitler-be-the-first-person-that-aliens-see.html>
- Rhodes, Margaret. “The Amazingly Accurate Futurism of 2001: A Space Odyssey”. Wired, accessed April 25 2018, <https://www.wired.com/2015/08/amazingly-accurate-futurism-2001-space-odyssey/>
- Rogers, Adam. “Wrinkles in Spacetime the Warped Astrophysics of *Interstellar*”. Wired, accessed April 26 2018, <https://www.wired.com/2014/10/astrophysics-interstellar-black-hole/>
- Scanlon, Paul. “George Lucas: The Wizard of ‘Star Wars’”. Rolling Stone, August 25 1977, <https://www.rollingstone.com/movies/news/the-wizard-of-star-wars-20120504>
- Stephenson, Neal. "Innovation starvation." *World Policy Journal* 28, no. 3 (2011).

- Svetkey, Benjamin. "Making *Contact*: The Story behind the controversial space odyssey". Entertainment Weekly, July 18 1997, <http://ew.com/article/1997/07/18/making-contact/>
- "Turning sci-fi into fact". BBC News, January 3rd 2002, http://news.bbc.co.uk/2/hi/uk_news/1247163.stm
- Wilford, John. "In 'Contact,' Science and Fiction Nudge Close Together". The New York Times, July 20 1997, <https://www.nytimes.com/1997/07/20/movies/in-contact-science-and-fiction-nudge-close-together.html>
- Williams, Craig H., Leonard A. Dudzinski, Stanley K. Borowski, and Albert J. Juhasz. "Realizing" 2001: A space odyssey": Piloted spherical torus nuclear fusion propulsion." *Journal of spacecraft and rockets* 39, no. 6 (2002): 874-885.

Music & Poetry:

- Dacre, Harry. *Daisy Bell*. 1892.
- Khachaturian, Aram. *Gayane Ballet Suite (Adagio)*. 1942.
- Ligeti, György. *Lux Aeterna*. 1966.
- Ligeti, György. *Atmosphères*. 1961.
- Ligeti, György. *Requiem for Soprano, Mezzo-Soprano, 2 Mixed Choirs and Orchestra*. 1965.
- Strauss, Johann. *The Blue Danube*. 1866.
- Strauss, Richard. *Also sprach Zarathustra, Op. 30*. 1896.
- Thomas, Dylan. "Do not go gentle into that good night." 1952.
- Zimmer, Hans. *Dreaming of the Crash*. 2014.

Filmography

Films referenced:

- ***2001: A Space Odyssey***. Directed by Stanley Kubrick. 1968. Stanley Kubrick Productions/Metro-Goldwyn-Mayer. Film.
- ***A Trip to the Moon***. Directed by Georges Méliès. 1902. Star Film Company. Film.
- ***Contact***. Directed by Robert Zemeckis. 1997. South Side Amusement Company/Warner Bros. Film.
- ***Gravity***. Directed by Alfonso Cuarón. 2013. Heyday Films, Esperanto Filmoj/Warner Bros. Pictures. Film.
- ***Interstellar***. Directed by Christopher Nolan. 2014. Legendary Pictures, Syncopy, Lynda Obst Productions/Paramount Pictures. Film.
- ***Star Wars: Episode IV - A New Hope***. Directed by George Lucas. 1977. Lucasfilm Ltd./20th Century Fox. Film.
- ***Sunshine***. Directed by Danny Boyle. 2007. Moving Picture Company, DNA Films, UK Film Council, Ingenious Film Partners/Fox Searchlight Pictures. Film.
- ***The Martian***. Directed by Ridley Scott. 2015. Scott Free Productions, Kinberg Genre, TSG Entertainment/20th Century Fox. Film.
- ***WALL-E***. Directed by Andrew Stanton. 2008. Walt Disney Pictures, Pixar Animation Studios/Walt Disney Studios Motion Pictures. Film.
- ***Woman in the Moon***. Directed by Fritz Lang. 1929. UFA. Film.