

A PARADIGM SHIFT FOR THE SCIENCE DOCUMENTARY

by

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ABSTRACT

The science documentary exists within a very specific cultural space. It is not only separate from conventional fictional entertainment but it is also separate from the mainstream, or social documentary, tradition. The cross-blending of genres and the borrowing of technique and style from current “modern documentaries” should lead to a radical reinvention of the paradigm (i.e., a paradigm shift) of the science/natural history documentary.

This essay will focus on three main areas of discussion: the rise of the modern documentary, a discussion exploring the characteristics of the current paradigm of traditional science films, and a survey of those projects that move towards a hybrid of science and entertainment. In looking at these films, we will consider my thesis film, *Oil Eye for the Average Guy*, (2007), which attempts to construct the new science documentary paradigm by using “social documentary” techniques to reach a larger audience.

INTRODUCTION

In the current entertainment environment, competition for viewers is at an all-time high. Gone are the days of three or four television channels. With hundreds of TV channels catering to hyper-specific demographics, not to mention the new media currently being distributed via the internet, the modern science or natural history documentary filmmaker faces both new challenges and new opportunities.¹ (For the sake of brevity, I will be referring to both the science and natural history aspects of this genre collectively as the science documentary unless specifically distinguishing between them.)

As with other types of filmmaking, the key purpose behind a typical science documentary is communication, and the aim is to communicate with the largest audience possible. Given the plethora of choices available to the average viewer, it becomes necessary to classify and segregate the different options; thus, in dramatic films, we have constructed genre divisions such as the action movie, the romantic comedy, the situation comedy, the game show, or the documentary. In non-fiction productions, Ellis and McLane classify the traditional documentary using five criteria: (1) subjects; (2) purposes, viewpoints, or approaches; (3) forms; (4) production methods and techniques; and (5) the sorts of experiences they offer audiences.² Generally, the subject of documentaries is something specific and factual, and usually of public importance even if the action is private. The purpose or approach of documentaries

refers to the statements that the filmmakers are trying to make about the subjects of their films, generally social or cultural in nature. The form usually arises from the subject and purpose and often resembles non-narrative written forms such as essays or poems rather than novels or plays. The production method and technique refers to the specific ways that documentaries are shot and edited as well as the type of performers appearing in them. Specifically, the filmmakers' use of "real people" and shooting on location as opposed to a soundstage production is emphasized. Finally, the audience experience is focused more on the subjects of the documentary (and statements about them) rather than the artistic dramatic skills of the filmmakers.³

The science documentary, however, exists within a very specific cultural space. It is not only separate from conventional fictional entertainment but it is also separate from the mainstream, or social documentary, tradition. The cross-blending of genres and the borrowing of technique and style from current "modern documentaries" should lead to a radical reinvention of the paradigm (i.e., a paradigm shift) of the science/natural history documentary.

This essay will focus on three main areas of discussion: the rise of the modern documentary, a discussion exploring the characteristics of the current paradigm of traditional science films, and a survey of those projects that move towards a hybrid of science and entertainment. In looking at these films, we will consider my thesis film, *Oil Eye for the Average Guy*, (2007), which attempts to construct the new science documentary paradigm by using "social documentary" techniques to reach a larger

audience. In considering the science documentary and its place in the informational and entertainment media, it will be helpful to discuss how the entertainment landscape has evolved and shifted since the genesis of the film medium about 112 years ago.

Scientific thought presents an exceptional model for discussing the occurrence of massive changes in worldview, generally described as a paradigm shift. In more colloquial – and emotional - terms, this transformation is known as a scientific revolution.⁴ As a cultural reference point, the last major paradigm shift in science came at the early part of the twentieth century with the development of quantum mechanics and the theory of relativity. This replaced the Newtonian model of classical mechanics. When considering the concept of a paradigm shift, one naturally looks to the seminal work by Thomas Kuhn, *The Structure of Scientific Revolutions*, in which Kuhn lays out the necessary steps for a paradigm shift within the scientific community. According to Kuhn, a paradigm shift happens when the world in which science operates is completely changed. This major transformation is preceded by a series of “anomalies” or crisis points which do not fit into the current paradigm.⁵ These crisis points lead to a radical re-evaluation of the paradigm. Ultimately, the old paradigm is rejected and completely discarded in favor of the new worldview. In a scientific revolution, according to Kuhn, the paradigm within a scientific discipline is completely shattered and re-built, leading to the development of completely different problems within the new paradigm. In effect, it is as though the professional scientific community was

suddenly transported to another planet where familiar objects are now seen differently and unfamiliar ones surface as well.⁶

To give an historical example, a major scientific revolution was brought about by Nicolaus Copernicus in 1543, when he proposed a heliocentric model of the solar system. The old paradigm had placed the Earth at the center of the solar system; the Copernican model postulated that the sun was at the center of the solar system. This new theory is now considered one of the greatest scientific breakthroughs of all time because after Copernicus presented his radically new version of the solar system, scientists were able to investigate an entirely new universe. This universe had a completely different set of assumptions and laws because of the new picture that the Copernican model described.⁷ Drawing on the concept of the paradigm shift, one can look at the nature of the development of the filmed entertainment industry in a similar light, although it should be noted that, within this world, we have more of an evolution rather than a revolution. Nevertheless, a paradigm shift has still occurred.

The Evolution of Modern Entertainment

Until the late nineteenth century, the only form of performance-based entertainment was the theatre, or some variation, such as the circus. (For the purposes of this essay, the British spelling theatre will denote the world of live theatrical productions while the American spelling theater will denote a building where films are

shown.) With the advent of film, a true revolution would have led, eventually, to the fading away of theatre. Indeed, we have seen just the opposite; in fact, a new mode of theatre (the American musical comedy) has developed since (and perhaps because of) the advent of film. This form developed primarily from an entertainment tradition rather than from a literary tradition. If film provided a new means of escapism, the musical was theatre's answer to that challenge.⁸ Film, however, has gone through paradigm shifts of its own which are much closer to revolution (at least in Kuhn's terms) over the course of its existence, especially considering the developments of sound and color. In a very real sense, silent films and black-and-white films do not exist today except for specific aesthetic exercises or effects and are used by filmmakers to make specific artistic statements.

As film was going through its major developments in the burgeoning national entertainment industry of theaters, a similar evolution was occurring in the American home: the growth of radio. Radio, during its Golden Age (1935-1950) provided entertainment to millions of households and developed a mode of storytelling that was completely different from film or theatre, recalling the oral storytelling traditions of the past. Radio relied on voice actors, music and sound effects to provide entertainment in what some have called the "theatre of the mind." By 1950, 94% of all American households owned a radio set. The first major American broadcasting networks (CBS, NBC, ABC) were all formed as radio broadcasting networks.⁹

With the advent of television, the entertainment industry went through another stage of evolution. Although there was initially a tremendous competition for audiences, film, radio and television have all managed to continue to thrive, though radio has evolved away from scripted entertainment. This change was due in large part to the audience's move away from radio to television for story-based entertainment. Many early television entertainers, such as Jack Benny, Burns and Allen, and Bob Hope were veterans of radio. Not surprisingly, many early television programs evolved from successful radio shows.¹⁰ On the film front, the advent of television led directly to the development of wider film stock and wider screen projection in order to give film audiences greater incentive for attending the theater now that visual as well as audio entertainment could be sent directly into their homes. As television has developed, it, too, has gone through its own evolution with the development of cable networks. As the situation stands today, although the major networks (ABC, CBS, NBC, and the once-upstart Fox) still control a majority of television entertainment, there are literally hundreds of options at any given time, thanks to cable and satellite technology.¹¹

A third major stage in the evolution of the entertainment world was the development of home entertainment. With the videocassette in the 1980s, and, later, the digital video disc (DVD) in the 1990s, viewers were able to store both films and television shows to watch in the comfort of one's own home without commercials. Along with this home entertainment trend has come the digital video recorder (DVR)

and the concept of entertainment on demand. As we are still in the midst of this transition, keeping in mind that videocassettes are basically obsolete, it should suffice to mention the rise of streaming media for the Internet, including downloadable content.¹² In other words, a viewer can now view an original film or television show, rent or purchase it on DVD, or download it to a portable device such as a laptop or an iPod. The practical effect of this development is that filmmakers (used in the general sense to include videomakers), along with advertisers, are exploring new ways to break in to the super-saturated entertainment market and sustain the interest (and thus, the buying power) of the individual viewer.

Technology and the Traditional Documentary Paradigm

In addition to the evolution of form within the entertainment community, it is equally important to discuss further the evolution of technology in film production as well, particularly because of the strong influence technical developments have had on the documentary community. Beginning in the late 1950s, advances in technology permitted more convenient and economical synchronous recording of sight and sound outside the confines of soundstages and studio backlots.¹³ Although it would be some time before Hollywood fully appropriated these advances, the documentary world, specifically the Drew Associates in the U.S. and Jean Rouch in France, seized the opportunity offered by more portable equipment to make personal films that led to the

rise of two separate but related documentary movements. These two movements would provide the paradigm for documentary filmmaking for more than two decades until the next paradigm shift, which led to the modern documentary.¹⁴ Both the Drew and Rouch styles aim for a naturalistic approach, allowing the subjects to speak for themselves, with minimal direct interviewing. Nevertheless, they differed from each other in the stated aesthetic goals of their practitioners.

The first “movement” (although, chronologically, the two happened essentially simultaneously) was called *cinéma vérité* (film truth) and was spearheaded by the French filmmaker Jean Rouch.¹⁵ It directly follows the tradition of early documentary filmmakers Robert Flaherty and Dziga Vertov. Rouch sought to combine Vertov’s theory with Flaherty’s method.¹⁶ The second approach was called “direct cinema” and is primarily associated with the Americans Robert Drew, D.A. Pennebaker, brothers Albert and David Maysles, and their colleague Englishman Richard Leacock. Their approach differed from Rouch’s style in its theoretical approach.¹⁷

The major difference between the two movements comes in terms of their often conflicting ideals of objectivity and subjectivity. Direct cinema advocates assert that the finished film is a record of what would have happened whether the camera was present or not; in other words, the aim is an objective picture of the subject’s reality. This style is popularly known as the “fly on the wall” approach – the filmmakers try to remain invisible, capturing the action as it occurs. In contrast, the *cinéma vérité* camp maintained that objectivity was impossible due to the presence of the

camera.¹⁸ Thus, the filmmaker became an *agent provocateur*, precipitating the crisis of the film, out of which emerged the (film) truth. Direct cinema advocates attempted to enter a situation that would have a natural moment of crisis, such as a political campaign (as in *Primary*, 1960), but did not precipitate the crisis. Another example is Frederick Wiseman's *High School* (1968), which did not have a major crisis point, but the smaller crises that take place reveal the tensions within a high school by leading to dramatic urgency when viewed cumulatively. Ellis and McLane summarize the difference this way: "Rouch wanted to explain the *raison d'être* of life, whereas Leacock wanted to let life reveal itself."¹⁹ These two styles dominated the documentary genre in one form or another, with a philosophy that advocated eschewing recreations, voiceover, musical scores, additional lighting, and other "trappings" of dramatic films. In effect, they defined the paradigm of documentary through the social documentary movement of the late 1960s and 1970s into the late 1980s. Ironically, the terms "direct cinema" and "cinéma vérité" are now used interchangeably.²⁰

THE RISE OF THE MODERN DOCUMENTARY

The Academy of Motion Picture Arts and Sciences, the American Film Institute, and the British Film Institute all define a feature as a film with a running time of 40 minutes or longer.²¹ Using this definition, this essay will focus on feature-length films, regardless of original format or distribution. Documentary, as a genre, has seen a tremendous growth over the last fifteen years. For the purposes of this discussion, the modern documentary is anything released in or after 1990. There are several reasons for this classification. First, all ten of the highest grossing theatrically released documentaries of all time appeared since 1990. This fact is notable in that it reveals a substantial shift in the public awareness and appreciation of the documentary. Second, there has been a major shift in documentary structure and aesthetics that came to fruition in the early 1990s. This shift has led to a new paradigm of documentary, which is at the center of this discussion. In studying this new paradigm, which has the added factor of a stronger cultural base behind it, I am attempting to identify its characteristics rather than look at a theoretical framework. In doing so, we can map this current paradigm. Moreover, I believe that the science documentary must undergo a paradigm shift of its own as it moves forward in the expanding entertainment landscape.

Returning to the framework of a scientific revolution to discuss changes in worldview, Kuhn maintains that most science (or in our case, filmmaking) takes place

within a world of very clear boundaries and expectations. The daily process of science, then, exists to further articulate and define this world.²² So it is with filmmaking. However, there comes a point at which the paradigm is put into crisis; that is, there are specific cases that refuse to fit the model established by the paradigm.²³ It is the failure to reconcile these anomalies during the crisis period that precipitates the formation of a new paradigm. Just prior to 1990, if we follow Kuhn's model, we find several anomalies that ultimately lead to the paradigm shift within documentary filmmaking.

Paradigm in Crisis (*The Thin Blue Line, Roger & Me, Hoop Dreams*)

In the mid-1980s, the work of two filmmakers began to move the documentary paradigm in new directions, ultimately leading to a crisis point. The first was Errol Morris who, with the release of *The Thin Blue Line* in 1988, began to move sharply away from conventional documentary. Dealing with the arrest and conviction of Randall Adams for the murder of a Dallas police officer, the film explores the relationship between the police, the justice system, and those who are accused of crimes. According to Morris, he intentionally sought to break the rules of traditional *cinéma vérité*:

You take any of the principles of *vérité*, I was interested in doing the opposite.... it seemed to me that the idea of *vérité*, the metaphysical baggage of *vérité*, seemed to be quite false.... we tried to be as obtrusive

as possible, we used the heaviest equipment we could find, people looked directly into the camera, which is a big no-no. To break that *cinema vérité* notion of observing without being observed, I lit everything.²⁴

In addition to the specific techniques already highlighted, Morris used dramatic musical scoring by avant-garde composer Philip Glass. Perhaps Morris' most controversial decision in *The Thin Blue Line* was to use a significant number of dramatic re-creations or re-enactments. These re-creations described the pivotal event of the shooting of a police officer from several different points of view in an attempt to further the film's contention that Adams was wrongfully convicted. In fact, the technique caused enough controversy to prevent the film from securing an Oscar nomination because it was "not a proper documentary."²⁵ Nonetheless, the film attracted a large theatrical audience for its time and has since become known as one of the most important and influential films of the decade.²⁶

With the release of *Roger & Me* in 1989, Michael Moore explicitly moved the documentary form closer to our modern understanding of the "mainstream" documentary. Several characteristics stand out in the film, which tackles the apparent indifference of General Motors to the closing of their plant in Flint, Michigan. The title refers to Moore's (ultimately unsuccessful) attempt to interview Roger Smith, the CEO of General Motors at the time. These characteristics continue in Moore's subsequent work, and will be more fully discussed later in this essay, but they should be noted here. First, Moore places himself at the center of the action, moving from a present, but unseen observer to the protagonist of the film and the champion of the

factory workers. Second, Moore's use of irony and satire through voiceover moves the technique from an expository tool towards a persuasive, argumentative one. Finally, Moore's role as a surrogate Everyman drives the film towards a pressing, relatable subject matter – in this case, the disenfranchisement of tens of thousands of blue-collar workers in the 1980s. This observation is not to imply that Moore was the first to have a relatable subject matter or that his approach was unique; rather, *Roger & Me* reveals a convergence of emerging techniques. Indeed, it is likely that Moore was influenced, at least in part, by director Ross McElwee's *Sherman's March: A Meditation on the Possibility of Romantic Love in the South During an Era of Nuclear Weapons Proliferation* (1986). Ellis points out that this filmmaker-as-character narrative was “highly influential among other emerging documentarians of the time and critically applauded.”²⁷

Although documentaries found a voice in the world of theatrical distribution in the 1980s and 1990s, the film that really turned the tide and heralded the commercial success of the modern documentary was *Hoop Dreams* (1994), a film by Steve James. Set on the streets of Chicago, *Hoop Dreams* told the story of two high school basketball players as they pursued their dreams of NBA stardom amidst the trials of growing up within the inner city culture. After the film won the award for Best Documentary at Sundance in 1994, Fine Line Features prepared the film for theatrical distribution and released it to huge critical acclaim. The film went on to become the highest-grossing documentary up to that date and still ranks among the top ten highest-

grossing documentaries. As Ellis and McLane point out, “The gross in this case is important because the sense that *Hoop Dreams* was making money was one of the reasons more attention was brought to theatrical release for documentaries.”²⁸ In addition, *Hoop Dreams* provides an example of the impact of technology – it was originally shot on video and transferred to 35mm film stock for theatrical distribution.²⁹

The Importance of Television and the Rise of Reality TV

In examining the rise of the modern documentary, the role of television cannot be ignored. Although documentary was a staple of early films, especially in the works of filmmakers like Flaherty, Grierson and Vertov, the documentary found its most comfortable home on the small screen after the public’s acceptance of television. The main reason for this migration to the small screen was the eagerness of documentary filmmakers to embrace new production technology, as discussed earlier. With respect to the modern documentary, two factors stand out as specific causal markers in forming this new paradigm. Both have contributed to a cultural shift in entertainment, the effect of which has been an awakening to the form and structure of documentary as a means of entertainment. The first is the rise of so-called “reality television,” which is actually unscripted but staged entertainment, rather than any objective reflection of reality. The first incarnation of this genre can be traced to the legendary TV producer Alan Funt, and the landmark *Candid Camera*, which debuted

in 1948 and ran for many years in one form or another. In this program, hidden cameras led to humorous moments. Throughout this relatively early period of television, films like *Primary*, which is considered the first direct cinema documentary, and the Edward R. Murrow-hosted *CBS Reports* program *Harvest of Shame* (1960), which aired on the night after Thanksgiving in 1960, had successful television debuts.

In 1973, PBS broadcast *An American Family*, a series that blended the traditional observational documentary with the sensationalism of a fiction film. Given some of the particulars of the series, such as the onscreen divorce of the parents and the coming out of a gay son, the series caused considerable controversy and public interest. Sociologist Margaret Mead noted to *TV Guide* that this program no longer fit the documentary category and that we needed a new name for this type of television.³⁰ Popular precursors of reality television in the 1980s included *Unsolved Mysteries* (1987) and *America's Most Wanted* (1988), two series that were heavy with reenactments. *Rescue 911* (1989) and *Cops* (1989) took the *vérité* tradition and edited each episode specifically catering to the sensationalism of the paramedics and police officers, respectively.

It was MTV's launch of *The Real World* in 1992 that proved to be the most direct precursor to what we now consider reality TV. In this series, producers staged an environment that allowed "realistic" situations to develop. In effect, the series took most of the defining characteristics of previous reality-based series and combined them to create what Stella Bruzzi calls a docusoap; that is, a *vérité* work that relaxes

or blurs the lines between documentary and fictional storytelling.³¹ First, the participants were carefully selected to provide the best environment for explosive confrontations such as clashing personality types. Second, the participants were constantly filmed, increasing their comfort level with the cameras. Third, the participants were interviewed directly, speaking directly into the camera, in a style that has become known as “confessionals,” in order to provide direct insight into the events taking place.³² In short, *The Real World* provided a model for this new genre, which Bruzzi describes as the following:

“The characteristics that have come to represent the docusoap subgenre of observational documentary are its emphasis on the entertainment as opposed to the serious or educational nature of documentary, the importance of personalities who enjoy performing for the camera, soap-like fast editing, a prominent, guiding voiceover, a focus on everyday lives rather than underlying social issues.”³³

In this, at least, *The Real World* started with a higher standard, dealing with relevant social issues such as homosexuality, AIDS, racism, religion and abortion. In recent years, the series has been more about spectacle and personality.³⁴ Nevertheless, *The Real World*'s popularity led to two massively popular shows which debuted in 2000: *Survivor*, which “stranded” contestants in a remote location to compete for prize money, and *Big Brother*, which was essentially *The Real World* as a game show. Ironically, both of these shows were based on previous incarnations overseas – *Survivor* appeared first in Sweden, while *Big Brother* was based on a show from the Netherlands.³⁵

These two shows are generally credited with opening the floodgates of reality television. The major reason is that they were the first attempts by major networks to jump into reality TV. *Survivor* was a huge hit, and, along with *Big Brother* and *Who Wants to Be a Millionaire?* (2000), demonstrated to the networks the viability of reality television programs (especially those with a game show component) on a massive scale. These successes led to *The Amazing Race* (2001), *Extreme Makeover: Home Edition* (2003), *Dancing With The Stars* (2005), *The Bachelor* (2002) and the new juggernaut, *American Idol* (2002). While it is true that shows like *American Idol* and *Dancing With the Stars* are closer to talent shows than docusoaps, the simple fact remains that they are included in the pantheon of reality television because they include candid contestant interviews, behind-the-scenes footage, and supposedly “real people”(i.e., non-actors). Here again, we see a demonstrated cultural trend towards unscripted entertainment, regardless of its dramatic structure.

The wave of reality TV has forever changed the landscape of television, even leading to the creation of a new category for the Emmys in 2002.³⁶ With the explosion of reality TV, viewers are now seeking more and more non-fiction and/or unscripted entertainment, which has led, in part, to the resurgence of documentaries in the popular culture. The other major factor that has contributed significantly to the current paradigm in documentary is the growth of outlets outside the traditional model of major broadcast television networks.

The Other Side of Television: HBO and PBS

Two of the key catalysts for documentary's rise exist at opposite ends of the corporate spectrum: HBO and PBS. The contribution to the documentary film industry by these two entities cannot go unnoticed. Although there is not room here for an in-depth analysis, it is necessary to dwell on a few key issues. First, and perhaps most important, there is the issue of brand identity. The Home Box Office premium cable network (HBO) has consistently branded itself as being different, edgy and bold in its programming choices ("It's not TV, it's HBO") in an effort to retain their paid subscription customer base. HBO's programming department attempts to distance itself from the programming choices of the major networks. Combined with the lesser censorship restrictions of cable, this production and marketing strategy has led to groundbreaking shows such as *The Sopranos* (1999) and *Six Feet Under* (2001), both of which were critical and popular successes. Along with their original fictional programming, HBO has spearheaded the development of innovative documentaries over the past twenty years as a way to complement the cable network's brand identity. Specifically, this development can be attributed to Sheila Nevins, who is now the president of HBO Documentaries. Overall, HBO and Cinemax documentaries have won 47 Emmy Awards, 12 Oscars and 17 George Foster Peabody Awards.³⁷

In the case of the Public Broadcasting System (PBS), we find a very different, but no less distinctive, brand identity. PBS has consistently put itself forward as a leader in educational programming. This positioning has taken several forms, including educational content in the arts (*Great Performances*, 1972), literature (*Masterpiece Theatre*, 1972), childhood development (*Sesame Street*, 1968; *Mister Rogers*, 1968), current events (*Lehrer News Hour*, 1975; *Frontline*, 1983), history (*American Experience*, 1988) and biography (*American Masters*, 1983). In addition, the long running series *Nova* (1974) provides a framework for a variety of science and natural history documentaries. In contrast to HBO, which aims for controversial subjects and programming, PBS is often viewed as being the responsible, educational outlet for the television viewer. This brand identity has provided an especially helpful climate for science, natural history and other types of educational documentaries over the years. PBS supported groundbreaking work dealing with minority issues such as *Eyes on the Prize* (1987), about the history of the Civil Rights movement; *Tongues Untied* (1990), about gay black men; and *Silverlake Life: The View from Here* (1993), a video diary about a male gay couple dying from AIDS. In addition, PBS supported the formation of the Independent Television and Video Service (ITVS), which was run by filmmakers and helped to produce some of the most daring programming on American television from the 1990s to today.³⁸

Another key component and difference between both entities is the economic model under which they operate. Both of their respective funding structures are dras-

tically different from network television. HBO operates through a paid subscription base that allows it independence from advertisers. Consequently, they are also less dependent on ratings as a measure of success. Rather, they look at the “burn rate,” or how quickly they lose subscribers.³⁹ This measuring of viewership allows executives like Nevins a great amount of freedom in selecting projects; ultimately, as long as their burn rate is acceptable, Nevins retains creative freedom in her programming choices. In addition, the subscription base provides HBO with different resources than network television, leading to higher budgets and less creative restraint on the individuals producing programming. Since HBO is not locked into the same primetime block of September to May as the networks, it has very different expectations of shows. First, there are fewer episodes per season, so more money can be spent per episode. Second, the ratings for HBO are interpreted very differently than network television because of the smaller number of total viewers.⁴⁰ Ultimately, these differences have led to several high-profile, critically acclaimed, award-winning series, allowing HBO to brand itself as the best cable network available.

PBS also operates outside of the traditional advertising-driven network arena, but in a different way. PBS depends on grants, federal funding and viewer contributions to sustain programming and has done so since its earliest days. Though it has always accepted corporate sponsorship, PBS’s onscreen acknowledgements of this funding have changed drastically in recent years. The corporate underwriting credits now often more closely resemble a commercial spot than previously, when just a

voiceover and perhaps a logo served as a public thank you. This underwriting and donation approach is distinctly different, however, from the commercially driven landscape of network television in that PBS is not fighting for advertising dollars. The fact that both HBO and PBS keep themselves separate from the multiple corporate influence often exerted through advertising has allowed them to present a far greater number of documentaries than the typical television network. (HBO is, of course, part of the sprawling Time-Warner media conglomerate.) Since the growth of the Discovery Networks and other cable channels like Biography, The History Channel and The National Geographic Channel, all of which basically cloned different aspects of the formats PBS originated, PBS has not been able to compete with the budgets of privately financed documentaries.

HBO's documentaries are generally presented as part of the *America Undercover* (1993) series, which mixes lowbrow and highbrow subject matters from week to week. In addition, HBO Documentaries now acts as a studio and distributor of sorts, bringing films to the public that are thought-provoking and have become, in recent years, synonymous with major awards such as the Oscars for both feature-length and short subject documentaries. PBS helped to give rise to the video diary style of documentary as exemplified by the films *Surname Viet, Given Name Nam* (1989) and *Silverlake Life: The View From Here*. PBS strongly supported films like these throughout the 1990s. PBS has also formed a long-term relationship with historical filmmaker Ken Burns, who has contributed to the new documentary paradigm with

his stylized approach to historical documentaries. His work, which includes the epic miniseries *The Civil War* (1990), *Baseball* (1994), and *Jazz* (2001), has been seen by millions of Americans, for whom Burns now often exemplifies the “PBS style” of documentary.

The Current Documentary Paradigm

In exploring the contributing factors to the current documentary paradigm and the cultural shift that has accompanied it, we have yet to discuss the characteristics of the films themselves. Since we are discussing the public consciousness regarding documentary, it is logical to construct a representative group of films based on box office success. In looking at the top ten highest grossing documentaries, we do indeed see that all of them have been released since 1990. (See Appendix.) In looking more closely, we begin to see very definite themes and characteristics. Beginning at the top, we find Michael Moore’s *Fahrenheit 9/11* (2004), which is joined by his 2002 release exploring the culture of guns in America, *Bowling For Columbine*. Like *Roger & Me*, they feature Moore’s trademark average-Joe persona, though in *Fahrenheit 9/11* Moore spends less time onscreen. Regardless, Moore’s personal essay approach to documentary filmmaking has proved a reliable box office model as evidenced by another entry on the list, Morgan Spurlock’s *Super Size Me* (2004), an indictment of the American fast food industry. In addition to the science-based films

that we will discuss in the next section, more traditionally structured documentaries round out the list with *Hoop Dreams*, *Madonna: Truth or Dare* (1991), *Tupac: Resurrection* (2003), and *Mad Hot Ballroom* (2005). In exploring the characteristics of the modern documentary paradigm, we will focus primarily on these films but add other relevant examples as needed.

The first key characteristic of the new documentary paradigm is the filmmaker as main character. This is clearly seen in the films of Michael Moore and in *Super Size Me*. Though Moore is rarely seen onscreen in *Fahrenheit 9/11*, his persona has now been so well-developed through his earlier films that it hardly matters – it is sufficiently present in his sarcastic voiceover. Most of the success of *Fahrenheit 9/11* came from its topical subject matter dealing with the war in Iraq, the 2000 and 2004 elections, and an aggressive marketing strategy pursued by the Weinstein brothers. It should also be noted that this film was Moore's follow-up to the Oscar-winning *Bowling For Columbine*, his biggest success since *Roger & Me*. In that film, he takes on gun violence in America, specifically focusing on the 1999 massacre at Columbine High School. One of the most memorable sequences of the film involves “taking bullets back to K-Mart,” in which Moore pressures K-Mart to stop selling ammunition, effectively demonstrating the social change he is aiming for in the film.⁴¹ In *Super Size Me*, Morgan Spurlock eats nothing but McDonald's food for 30 days in order to explore obesity in America and its relationship to the fast-food industry. Here, the connection with Spurlock is strengthened through his video diaries chronicling his

physical and emotional health throughout the film. He also takes a page from Moore's handbook, doing "vox populi" (man on the street) interviews and also confronting those individuals who are at the heart of the problem. There's even a moment reminiscent of *Roger & Me* when Spurlock tries (unsuccessfully) to interview Lisa Howard, the Director of Corporate Communications at McDonald's.⁴²

There is certainly room for a discussion regarding the onscreen persona, its relationship to the filmmaker's throughline point of view, and the thematic and emotional construction of the argument presented. For example, Michael Moore is no longer the grubby, unschooled average Joe of *Roger & Me*, yet the persona is effective in representing the American blue-collar Everyman. The revealing of character through observation has always been a staple of documentary going back at least as far as *Grey Gardens* (1975), *Salesman* (1969), or the films of Frederick Wiseman. The new documentary paradigm continues this tradition with Madonna in *Truth or Dare*, William Gates and Arthur Agee in *Hoop Dreams*, and Al Gore in *An Inconvenient Truth* (2006). The device of filmmaker as character has proved particularly potent in recent years. Spurlock's persona in *Super Size Me* is especially effective through his overt enjoyment of McDonald's food. As he admits, "It tastes good. That's why it's so popular."⁴³ His transformational journey has the necessary emotional impact because he's willing to take a less than flattering look at his body as he undergoes the experiment.

The second characteristic of the current documentary paradigm is a specific focus on subject matter that impacts the viewer in his or her daily life. Another incarnation of this phenomenon is the focus on specifically controversial current events. *Super Size Me* is perhaps the best example of this: it is about fast food. In reality, it deals with obesity in America, but the hook of “a guy who eats nothing but McDonald’s for a month” provided the necessary word-of-mouth advertising that turned the film into a box office success and secured an Oscar nomination. With *Bowling For Columbine* and *Fahrenheit 9/11*, national tragedies provided the backdrop; indeed, they are referenced in the titles. In addition, there have been a slew of films centered on the war in Iraq, such as *Iraq in Fragments* (2006), *Iraq For Sale* (2006), *The Blood of My Brother* (2005), *Gunner Palace* (2004) and *Voices From Iraq* (2004) among others. With *Truth or Dare* and *Tupac: Resurrection*, the immense popularity of the musical artists proved a box office draw; of course, Tupac’s untimely, unsolved death was a likely factor as well. Along these lines, we also find such films as *Biggie & Tupac* (2002) or *Kurt & Courtney* (1998). The practical reasons for the success of this type of trend are clear – the films focus on issues that relate to the audience. Granted, the best documentary filmmakers (such as Flaherty) have always done this, but there is certainly something to be said for achieving this quality in today’s fragmented, information-driven culture. Lauren Lazin, who directed *Tupac: Resurrection* and heads up MTV’s News and Specials Department, had this to say about the audience’s expectations:

“...it’s really about capturing the zeitgeist... We have a great research department. But a lot of it is just what filmmakers should do: Keep their eyes open to the world around them. Keep their eyes open for good stories. ... Our job is to know what the vibe is, and what’s important. What’s urgent. What’s urgent programming.”⁴⁴

An Inconvenient Truth had two such draws: the first major statement from Al Gore in several years (following his presidential defeat in 2000) combined with the threat of global warming that had been tied to the recent Hurricane Katrina disaster in 2005. On a lighter note, *Mad Hot Ballroom* featured cute kids in a ballroom dance competition at a time when ballroom dancing was enjoying an upsurge in popularity. One variant of this phenomenon seems to be a focus on a specific cultural niche that happens to appeal to a larger audience. For example, the surfing culture is explored in two successful documentaries: *Step Into Liquid* (2003) and *Riding Giants* (2004), both of which follow in the tradition of the *Endless Summer* films (1966, 1994). Likewise, in *Dogtown and Z-Boys* (2001), the genesis of skateboarding culture is discussed as an evolution of surfing, though *Dogtown* was released before either *Liquid* or *Giants*.

Then there are films like *Trekkies* (1997) (which was successful enough to spawn a sequel) or *Ringers: Lord of the Fans* (2005) that explore the fan cultures of *Star Trek* and *The Lord of the Rings* respectively. These films ultimately resemble ethnographic films in that they attempt to de-mystify and explore the behavior and social norms of specific cultural groups. The results are generally structured more for entertainment than education, leading to human-interest types of character studies.

However, these films also contribute to the new paradigm by showing audiences things they've never seen before, such as in *Dogtown*, in which we see a shooting and editing style based on the point of view of a fast-moving skateboard.⁴⁵

A third characteristic that contributes directly to the current documentary paradigm is the frequent use of humor. This element is a clear departure from the previous paradigm, in which many documentaries approach their subject matter from an extremely serious perspective, adopting a solemn, somber tone suited to education or social change. Moore, on the other hand, uses humor as the dominant motif in his films. One telling example is the "Mission Accomplished" sequence in *Fahrenheit 9/11*, in which George W. Bush lands on the *USS Abraham Lincoln* in full flight suit. Undercutting the visual image is the theme song from the TV series *The Greatest American Hero* (1981) entitled, "Believe It or Not." Juxtaposing the song and the news footage presents Bush in a satiric tone, provoking laughter. Another memorable example is the satirical "History of America" cartoon in *Bowling For Columbine*, linking the NRA and the KKK, implying that gun violence in America is a direct result of racism. In the same film, Moore uses clips of stand-up comedy material, most notably Chris Rock's "bullet control" monologue, to demonstrate how present in the American consciousness the issue has become. In *Super Size Me*, Spurlock has a great sequence that illustrates the creation of Chicken McNuggets.

A fourth characteristic is the more organic use of music in recent documentaries. This characteristic takes two forms. The first, and more conventional, is the use

of dramatic underscoring. Although previous documentaries used music to underscore the image, *The Thin Blue Line* featured a clear departure. In it, Morris collaborated with avant-garde composer Philip Glass to produce a score that had no direct historical or cultural relation to the subject matter. Usually, the music in earlier documentaries was related to the history or culture of the subject. (See, for example, the Appalachian folk music in the 1976 film *Harlan County, USA*.) The second form involves the use of popular music to either reinforce or undercut the visual image. Although music has certainly played a significant role in documentaries of the past, such as Virgil Thompson's Oscar-nominated score for Flaherty's *Louisiana Story* (1948), there has been a discernible trend towards songs that provide both musical accompaniment and take an ironic stance towards the onscreen action. A precedent for this kind of music use can be seen in Kevin and Pierce Rafferty's satiric treatment of nuclear age anxiety, *Atomic Café* (1982). Indeed, the Raffertys trained Moore and also worked on *Roger & Me*, undoubtedly influencing Moore's subsequent use of music.

Moore's films contain several specific examples of using music for ironic effect, such as the previously mentioned sequence in *Fahrenheit 9/11*. *Bowling For Columbine*'s main title sequence includes archival footage of bowling underscored with a song about "take the skinheads bowling," which directly plays into the theme of the film. One of the more famous sequences from the film involves the classic song "What a Wonderful World" playing underneath images of U.S. global policies

that have led to huge numbers of deaths. This juxtaposition was borrowed, in terms of contrasting the song and its lyrics against highly negative imagery, from a similar use of the song in the fictional film *Good Morning, Vietnam* (1987). The meaning that Moore creates is especially effective: U.S. citizens have been historically ignorant of the deaths that our government has unnecessarily caused overseas. Spurlock's use of music is similar to Moore's, such as his use of the "Blue Danube Waltz" underneath the graphic footage of a gastric bypass.

One of the great qualities about *Tupac: Resurrection* is that, because of its subject matter, it allows Lazin to use a much wider palette of music than the traditional documentary film. In this case, hip-hop not only provides an aural foundation, like an undercurrent of sound, but it also comments on the onscreen action through its lyrics. For example, after Tupac is released from jail the first time, he records "California Love," which reinforces the visual discussion of his life after release from prison through its lyrics.⁴⁶ In addition, by having a present aural reminder, Lazin creates the emotional connection between music and life for Tupac. The music reinforces the subject's credibility as an artist because the viewer sees the world as Tupac saw it: through the lens of his art. Clearly, documentary filmmakers in recent years have more frequently appropriated techniques from the fiction world in which a particular piece of recognizable music can communicate on an emotional level that either enhances or directly undercuts the information in the visual image.

The fifth key characteristic lies in the use of re-enactments or re-creations. Also included in this category are other staged events that do not re-create a previous action or historical event. Although *Nanook of the North* (1922) features re-creations, the paradigm of *cinéma vérité* and direct cinema had moved away from this position by the 1960s. Since the release of *The Thin Blue Line*, re-creations have become more and more accepted as a technique to tell a nonfiction story. *Touching the Void* (2003), for example, is almost all re-creation that deals with the dangers of mountain climbing. Ultimately, re-created scenes allow documentary filmmakers to tell more complete stories, especially if they are not able to “capture the moment.” This technique has become especially important in illustrating a story told by an interview subject, especially if footage does not exist already to do so. In the world of non-fiction filmmaking, this re-staging has become particularly necessary in mainstays of the television landscape, such as historical documentaries. The argument against this type of filmmaking is that the camera did not capture the “real” event, so the re-creation should not be included with the rest of the “live” footage. Re-creations also introduce elements such as acting, wardrobe, and production design that are typically reserved for fictional narrative filmmaking.

There has been a trend in recent years, likely due to Moore’s influence, to use “ambush interviews,” or contrived confrontations. These are very different from re-enactments, since re-enactments purport to “re-create” an event that actually happened. Ambush interviews, on the other hand, are specifically designed to catch their

subjects off-guard and make them look foolish for defending their position. Before Moore, this kind of interview had been reserved for investigative television news magazine shows, most notably the Dan Rather-era *60 Minutes*. Examples of this type of interview in Moore's work are the "returning bullets to K-Mart" scene or the final interview with Charlton Heston in *Bowling For Columbine*. These are clearly orchestrated by Moore in an attempt to further his arguments, and the audience accepts them along with the rest of the film as equally valid scenarios. The debate over the validity of scenarios such as these has raged back and forth for years and cuts right to the heart of the theoretical divide between direct cinema and *cinéma vérité*. Direct cinema filmmakers assert that the events onscreen happen because the filmmakers happened to be or consciously chose to be at the right place at the right time. *Vérité* followers, however, are more interested in the underlying truth of the story than in the principles of non-intervention that direct cinema advocates. As far as modern documentaries are concerned, the structural devices employed by reality television programs has, at least in the public mindset, validated the use of re-creations and ambush interviews in the documentary form.

The sixth key factor in the modern documentary paradigm is the shift away from social change or education as the sole *raison d'être* for documentaries. Instead, we find documentaries that exist primarily for entertainment purposes. Although films such as *Grey Gardens* or *Salesman* examined quirky characters, the films were produced in the service of larger themes that the filmmaker was exploring, such as the

recognition of class or the passing of an era of commerce. In more recent documentaries, however, non-fiction films often primarily tell a story that centers on quirky characters and their lives for the sake of entertainment. *Mad Hot Ballroom* is the perfect example, since the structure of the film tells the story of a public school class that wins the citywide ballroom dancing competition. An even stronger example is *Spellbound* (2003), in which the filmmakers follow eight contestants through the competition process of the national spelling bee. In this case, the audience gets a glimpse into each character's social and family life, ultimately as a means of connection and a way of building the story. Further, the structure of the film treats the spelling bee as a sporting event, an approach that has a specific dramatic payoff. Again, the cultural mindset seems to have been influenced by the reality television genre towards nonfiction as entertainment.

One final, non-aesthetic consideration in examining the modern documentary is the new importance given to marketing. If we look at two of the highest-grossing films of 2004, we find that they were produced and distributed outside the traditional studio system, and can both be considered a triumph of alternative marketing. The first film is Mel Gibson's *The Passion of the Christ*, whose box office success was largely fueled by religious groups. More relevant to this discussion, however, is the phenomenal success of Michael Moore's *Fahrenheit 9/11*. Although some of its success can be attributed to its subject matter during an election year and Moore's Oscar win for *Bowling for Columbine*, we nevertheless cannot discount the impact of the

intensive marketing by the Weinstein brothers, and Moore himself.⁴⁷ After the new approach to marketing launched by these two films, *March of the Penguins* followed a similar promotional pattern in 2005 and earned over \$75 million by targeting family groups. On the other end of the cultural spectrum, the marketing approach for *An Inconvenient Truth* targeted a more liberal segment of the population in 2006, with similar results. An interesting footnote is that both of these two films won the Oscar for Best Documentary Feature, perhaps signaling a trend towards box office success as a precursor to awards recognition. Clearly, distributors are beginning to realize that documentaries can make money if marketed effectively.

THE OUTMODED PARADIGM – SCIENCE DOCUMENTARIES

The science documentary has been in existence as long as documentary itself. Indeed, the film commonly regarded as the “first” documentary, Flaherty’s *Nanook of the North*, was also the first ethnographic film as well.⁴⁸ Much of the history of the science documentary is also the history of its place in the television landscape. When looking historically at characteristic documentaries, we see that the form has barely evolved from its first incarnations. Science and natural history films, broadly defined, then, are representatives of an outmoded paradigm, even though they continue to exist in cultural entertainment. In other words, the thinking seems to be, “if it works, don’t change it.” In order to fully appreciate the weaknesses of this genre of films, it is necessary to explore the paradigm from which they arose and some of the key criticisms directed at it.

Characteristics of the Science Documentary Paradigm

Traditional science documentaries generally fall into one of three categories. The first, and by far the most recognizable, is the “animals in Eden” motif. In this type of film, animals are presented as if mankind did not exist, or, at the very least, had no impact on them. Growing out of the tradition of Theodore Roosevelt’s African safaris and the Disney *True Life Adventures* of the 1950s, this type of film pre-

sents an unrealistic, idealized view of nature, presented as an untouched reality.⁴⁹

When done properly, this form can provide useful educational information and also prove highly entertaining. Two notable examples are *Mzima: Haunt of the River Horse* (2000) and the highly successful *Blue Planet* (2001) miniseries. In looking at these two films, certain characteristics leap out: stunning cinematography, traditional voice-of-God narration, and the complete absence of people.

The second major category of traditional science and natural history films is the illustrated lecture. Clearly, the recent *An Inconvenient Truth* belongs in this category. Essentially, these films aim to educate first and only rarely (sometimes not at all) do they attempt to entertain or connect on an emotional level. The main criticism of these types of films is the lack of a dramatic arc. In a sense, these films fail because all their coherence centers around the visual image. In other words, thematically or structurally, they use the image, rather than the idea as the touchstone. For example, if one were to watch a conventional science or natural history program with the sound turned off, he or she would be completely lost in terms of the intent or “meaning” of the images except in terms of what the images reveal superficially. In these films, the narration provides an arbitrary structure that is imposed upon the visual images rather than developing from them. In other words, the visuals exist to illustrate the narration, leading to a completely non-organic process.⁵⁰

The third category of science documentaries is the “scientist as explorer” structure. The best-known films of this type are the films of Jacques Cousteau, such

as *The Silent World* (1956) or his television series *The Undersea World of Jacques Cousteau* (1966). In this model, the film centers around a scientist's quest for something, whether it's an elusive species, or observing a natural process. As Alexander Wilson points out, "This arrangement – travelogue cum scientific documentary – became the model taken up by National Geographic and other filmmakers in the 1960s and after."⁵¹ In one respect, this bears some resemblance to the films of Michael Moore or Morgan Spurlock. In actuality, however, the newer examples of this type are more likely to be host-driven pieces like *Crocodile Hunter* (1996) or *Going Tribal* (2005). In effect, this is an excellent example of how much the genre has remained the same – the focus remains primarily on the performer/presenter's journey and discoveries rather than the science.

Fatal Flaws

Before the science documentary can move forward towards a new paradigm, it is necessary to examine the most pressing criticisms of the genre. A major target of criticism in the genre deals with so-called voice-of-God narration. This type of narration is so named because the narrator is an omniscient, unseen, usually masculine voice that moves the films along by telling the audience what to think and how to feel about the action that is taking place.⁵² This approach is clearly a one-sided perspective rather than a careful exploration and consensus through varying viewpoints, which is

the model at the core of scientific principles.⁵³ The best films of this voice-of-God type merely present a non-critical approach rather than a deliberate manipulation of information. With lesser films, however, fiction can be passed off to the unwitting audience as scientific fact.⁵⁴

The emotional connection achieved in mainstream documentaries or fiction films can – and has been – explored in natural history films, specifically in wildlife films, through anthropomorphism. Put simply, anthropomorphism is the ascribing of human qualities, emotions or motivations to animals.⁵⁵ While this may be an attempt to help the audience emotionally connect with the animals, it nevertheless presents a fictionalized version of reality. In addition, there is a very real concern that the biases of the filmmakers and/or their funding agencies may be imposed on animal behavior, such as in *Mutual of Omaha's Wild Kingdom* (1962).⁵⁶

A recent example of this technique is seen in *March of the Penguins*, where the yearly mating habits of emperor penguins are described as “a journey of love.” (This quote is from narration in the English version. The original French version let the audience hear the penguins’ “thoughts.”) In addition, the scene of penguin mating is particularly ludicrous. In order to make the film “family friendly,” the scene is handled “tastefully” with extreme close-ups of acceptable body parts, including penguins nuzzling to soft romantic music. This approach is an almost direct reconstruction of a sex scene from a teen romantic comedy rather than an accurate depiction of penguin mating habits.⁵⁷ Further, family behavior is implied where no such grouping

exists. Obviously, this presentation is primarily fictionalized and has no basis in a so-called science film.

In a close examination of *Winged Migration* (2003), we find that the anthropomorphism is virtually nonexistent, and the narration is sparing at best. On the one hand, this is an improvement over *March of the Penguins*. We also find stunning visual imagery. The film, however, has very little substance other than subtitled factoids (i.e., small, unimportant bits of possibly true information). As far as the cinematography, the birds needed to be habituated to the special aerial camera apparatus and were imprinted by the filmmakers; they became the birds' *de facto* parents. This approach raises ethical questions about interacting with the wildlife in a potentially destructive way.⁵⁸ (For example, what happened to the imprinted birds after the production wrapped? This information is difficult, if impossible, to find and is certainly not made readily available to the audience.) In addition, with the exception of a few key shots, humans are completely absent from the film. As noted earlier, this perspective presents an inaccurate view of the "nature" in this case.

The nature of the relationship between scientist and filmmaker bears mention in a discussion as well. Traditional relationships between the so-called "two cultures" of artists and scientists have been tentative at best and problematic at worst.⁵⁹ The filmmaker's goal is to provide a work that edifies in some form, whether through entertainment, education, or both. The goal of the scientist, however, is largely unconcerned with the dissemination of information to the general public, at least in a tradi-

tional sense.⁶⁰ When a scientist agrees to participate in a film, his or her function is usually to provide expert interpretation of the subject at hand. Due to artistic constraints such as style, timing and pace, a scientist's interview is usually edited. This process by its very nature changes the fabric of nuance that existed in the original interview. Often, the resulting film either presents the nature of scientific discovery incorrectly or oversimplifies the complexity of scientific issues.⁶¹ As Wilson points out, "Many National Geographic films give science a bad name."⁶²

One major factor that must be taken into account when discussing the cultural awareness of science films is the tremendous popularity of large-format films, generally shown in IMAX theaters and running about 40 minutes in length, which is right at the margin of the required length for a film to be considered a feature. These large-format films are shot with special 70mm cameras in order to provide the best quality and experience for a large screen. The projected area can stand up to eight stories high and be over 100 feet across.⁶³ IMAX has been producing large-format films for years, but their crowning achievements are *The Dream is Alive* (1985) and *Everest* (1998).⁶⁴ These surpass the impressive list of other high-grossing IMAX films such as *Antarctica* (1991), *Space Station* (2002), *Bugs!* (2003), and *Ghosts of the Abyss* (2003). IMAX has successfully established a brand identity based on stunning visuals and audience popularity. In fact, if we were to include IMAX films in the top 25 highest grossing theatrical documentaries, they would take 17 of the slots or over 2/3 of the list. These numbers are bit misleading, since IMAX films are so expensive to

produce. In addition, their shorter length can accommodate more total showings than films of traditional feature length shown in conventional theaters. Further, IMAX films are frequently shown in non-commercial venues, such as science museums, where there is no competition. These locations also do not report box office receipts in the same way as traditional theaters. Thus, for many people, this format is the traditional model for theatrical science films. From an aesthetic perspective, IMAX films generally rely on spectacle rather than story and factoids rather than science. There are some exceptions, of course, but the voice-of God narration that typifies these films leads back to the same criticism discussed earlier.

In recent years, there has been a growing number of programs in the television landscape that utilize the new techniques we have previously discussed in relation to more general interest nonfiction productions. The History Channel, for example, which formerly focused primarily on World War II-related films, has begun producing original content that leans heavily on re-enactments and re-creations, reflecting the change in acceptance brought to the genre by Errol Morris' *The Thin Blue Line*. In addition, Animal Planet incorporated the structural device of a character-driven narrative, first used with the hugely popular series *Crocodile Hunter* (starring the late Steve Irwin) and later with *The Jeff Corwin Experience* (2001). Discovery Channel and TLC (The Learning Channel) have begun producing reality television as well, with shows like *Trading Spaces* (2000), *American Chopper* (2003) or *Dirty Jobs* (2005) On the one hand, these changes may be inconsequential, since many of these

shows are clearly not concerned with science. Discovery Channel and TLC, though, have carefully crafted an image of educational, science-based entertainment throughout their history. This leads to a likely misconception that these reality shows are, by extension, science-related programming. Also, given the branding of these channels, with specific marketing tie-ins, we have seen radical transformations of the nonfiction programming landscape. Quite simply, there is an extraordinary amount of nonfiction programming being produced.⁶⁵ Some of it falls into the realm of science and natural history filmmaking. By and large, however, this kind of programming is cheap and easy to produce, leading to a serious dilution of aesthetic quality. The case could certainly be made that these changes have come about by appealing to the emotional and/or intellectual responses of the audience. The dilution of quality through the proliferation of material does not constitute progress; rather, it becomes harder and harder to find the noteworthy material, leading to a possible audience disillusionment with the medium as a whole.

A NEW MODEL: BRIDGING THE GAP

If we look to mainstream documentaries, we see drastic changes happening over the last fifteen years, specifically with the addition of humor, character development, dramatic structure, music use, and experimental film techniques. These techniques can be appropriated into the science and natural history film genre. There have been a few examples of films that are moving in this direction.

First Steps: Wildlife Pictures

When we look at films such as *March of the Penguins*, *An Inconvenient Truth* and *Winged Migration*, there is a temptation to discount the positive impact that they have had on the science and natural history filmmaking community. Although there are serious structural and aesthetic problems with these films, there are examples of positive change as well. First, and possibly most important, they have demonstrated that science films can make money in a theatrical venue. Until recently, science films have been almost exclusively available on television. In the case of these films, however, they were able to achieve a wide theatrical release that proved successful. Second, the fact that these films are attempting to put science into the cultural mindset is admirable. The rising box-office numbers speak to their success. This development

will hopefully lead to more opportunities. So these films have moved the science documentary genre forward by opening doors that may help more science films reach larger audiences.

Second Steps: “Science” Fiction

Science has made headway into the public consciousness through another form of entertainment – fictional storytelling. Not only have there been films based around science in recent years, there have also been several successful television shows as well. Perhaps the most successful example of this phenomenon is the television show *CSI: Crime Scene Investigation* (2000) and its two spin-off shows *CSI: Miami* (2002) and *CSI: New York* (2004). Each show centers on a team of forensic investigators who use science to solve crimes. As one might expect, the science is secondary to the story, but the *CSI* franchise has significantly raised the level of cultural awareness about forensic science to a new level. In a similar vein, the show *Numbers* (2005) features two brothers, one an FBI agent, one a world-renowned mathematician, who team up to solve crimes. Like *CSI*, the math is secondary, but there is at least a driving force to rebut the age-old question of every kid: “When am I gonna use this, anyway?” *Numbers* seems to have its heart in the right place as far as exposing the public to pragmatic – and dramatic – uses for mathematics.

In the world of feature films, *Frequency* (2000), *The Day After Tomorrow* (2004) and *Contact* (1997) stand out. *Frequency* is a time-travel fantasy that manages to work in serious science, from shortwave radios to solar flares. *The Day After Tomorrow* is a classic disaster movie that examines climate change and the effect it might have on the world. *Contact*, based on the novel by Carl Sagan, deals through the language of science with our first contact with aliens. In the grand scope of things, these examples are still entertainment: fictional stories that contain some science that justifies or sets off or explains the action line. The willingness of the filmmakers to step outside the box and bring science into the scope of public consciousness, though, is a step in the right direction.

Third Steps: Intellectual Entertainment

The greatest strides towards a new paradigm of science documentary films, however, are only beginning to surface. The first, and perhaps the most effective, is a 1996 film by Peter Friedman and Jean-François Brunet called *Death By Design*, about programmed cell death. It combines the best elements of mainstream modern documentary with the more traditional aspects of the science documentary to create a fresh, entertaining film. The film begins by taking a 1950s sci-fi approach to the titles, immediately setting a lighthearted, humorous tone for the film. Humor also

comes into play later: the filmmakers use film clips to illustrate the complex processes within the cell. For example, when talking about signals between cells, they use clips of smoke signals, lighthouses, and traffic lights to illustrate the point. They use the traditional talking heads, but they do something that is narratively innovative: they introduce all of the participants at the beginning, along with their credentials. This has the effect of validating each participant, and the group as a whole, but it frees the film to explore the narrative structure rather than focus on each participant individually. Put another way, although a standard technique is used, the method of approach gives it a fresh feel. In addition, microscopic cinematography of cell processes is juxtaposed with complex human processes to relate the two conceptually. Music also plays a large role in the film. In examining the microscopic processes, the filmmakers add overly dramatic music to heighten the life and death struggle at the cellular level. There are many other examples that I could discuss from this film, but, for the sake of brevity, I will move on, pausing to acknowledge another film by these filmmakers, called *The Life and Times of Life and Times*, released in 1998. This film covers the topic of aging, and though it is slightly inferior to *Death By Design*, it nevertheless remains another example of an unconventional science or natural history film.⁶⁶

Another film that makes a large leap forward as a science film is *The Elegant Universe*, originally broadcast as three one-hour segments of *Nova* on PBS in 2003. It deals with string theory, or put in a more romantic way, the possible “theory of everything.”⁶⁷ On the one hand, it is a fairly conventional science film in terms of narra-

tive development. Since it is divided into three parts, there is some necessary overlap. Ultimately, though, this structure aids the film from a pedagogical perspective, in that the repeated information helps to solidify the concept. Additionally, this structure allows for a comprehensive discussion of other topics which support string theory, such as classical mechanics, general relativity, quantum mechanics, particle physics, and so on. Beginning with the theoretical history that led to the development of string theory, the film then discusses early problems with the theory, its development and the larger implications it brings to our picture of the universe. Again, because of the structure, the concepts are explained in an extremely concise manner.

This conveying of information is also greatly aided by the host, author Brian Greene, who guides the film much like a lecture or a discussion. Perhaps the most significant component of *The Elegant Universe* that sets it apart, however, is its reliance on computer animation. Specifically, as string theory attempts to reconcile the conflict between the macrocosmic general relativity and the microcosmic quantum mechanics, the computer animation allows Greene to move seamlessly between the two extremes, interacting with the environment as he does so. In addition, the theoretical concepts are dramatized by having multiple versions of Greene interacting with himself, such as when he plays a game of quantum “catch” with himself to illustrate transmission packets. Another key moment comes when Greene “explores” the quantum world or when he takes a wormhole through New York City. Ultimately, this film is closer to a traditional science or natural history documentary than *Death*

By Design, but its clarity and its scientific accuracy, combined with its innovative visuals, certainly help to move the genre forward.

Similar to *The Elegant Universe* is a 2004 film called *What the #\$*! Do We Know!?* by William Arntz, Betsy Chasse, and Mark Vicente. The film is a true hybrid between the traditional science documentary, the mainstream documentary, and the fiction film. The filmmakers use a fictional character, played by Marlee Matlin, as a representational vehicle for the audience on a journey through the ideas that are explored in the film. So, from that perspective, there is character development, though the character is not developed in a traditional sense. Personally, I find the character a weakness of the film, but the device definitely contributes to the impulse towards the innovation we are discussing.

In addition to stunning computer animation such as that found in *The Elegant Universe*, *What the Bleep* (as it is often called) also uses traditional interviews. In this case, however, the identification of participants does not come until the end of the film. This technique effectively places all of them on equal footing. In the case of *Death By Design*, this use is entirely plausible – all of their credentials are satisfactory to the task of discussing cell biology. Here, the credentials are wildly varied, from scientists to mystics, authors and philosophers. In addition, there is a disclaimer at the end of the film stating that the film is intended to be a discussion rather than a persuasive argument, as is the case in traditional science or mainstream documentaries. I feel that if this disclaimer had come at the beginning of the film, it would have pro-

vided a more interactive dialogue between the subjects and the audience. Nevertheless, this particular disclaimer certainly qualifies as innovative. A further innovation comes with the blending of multiple topics. Rather than focusing on one specific subject, the film takes elements of quantum physics, biology, philosophy and religion to explore the big questions of existence. In all, I feel that this film fails as a science film, in that strays into too many tangential topics, but it definitely helps to change our understanding of how to use science in film and how to use innovation to produce more compelling and varied works of informational media.

These three examples are, it is hoped, the first of many crisis points within the community of science filmmakers. My thesis film attempts to put many of these innovative principles into practice and create a hybrid between a mainstream documentary, within its current paradigm, and a traditional science documentary. I hope to create an anomaly, or crisis point, within the current science documentary paradigm, leading to a paradigm shift within the science documentary production community.

OIL EYE FOR THE AVERAGE GUY

In constructing my thesis film, *Oil Eye for the Average Guy*, there were many things that converged to bring about its final form. The original impetus for the film was paraffin candles. I had no idea that paraffin wax (most of the candles on the market) come from oil by-products. As I began to dig deeper, I realized that we, as a society, are largely unaware of how much oil impacts our daily lives. From the beginning, the production was not designed to be a pro-oil or an anti-oil film. I intended to explore the concept that we all depend on oil, regardless of how we feel about it. At the same time, I was becoming frustrated by the narrow constraints of the science and natural history documentary genre. Since I was doing something vastly different, that also meant that there was no money available, so the film quickly became an exercise in low-budget filmmaking as well. As I began looking around for inspiration, I realized that mainstream documentaries had become extremely successful in recent years, so I began my research into their common characteristics.

This work also helped me to take many of the components of the mainstream documentary paradigm as a starting point. First, I made an early choice to include myself as a character within the film. This clearly follows in the tradition of Michael Moore and Morgan Spurlock. One of the major things I had to decide on early was to allow my onscreen persona to be separate from my actual personality. This divi-

sion helped greatly in watching myself on screen, since, to a large degree, I was playing a part. In addition, as production continued, I made the choice to narrate the film as well, commenting on the action. This proved to be a completely separate struggle for me on two fronts. First, I found that the *cinéma vérité*/direct cinema tradition was more deeply ingrained in me as a filmmaker than I had thought previously. I resisted the narration on an aesthetic level because the “letting the characters speak for themselves” axiom was present at an almost subconscious level. Second, when I did record the voiceover, I had to embrace the persona I had created in the way I delivered the narration. I was using my high vocal range (like a mid-range tenor) rather than my more comfortable lower range (closer to a baritone/bass). This “acting” took a conscious effort on my part to adhere to the demands of the character.

Second, my choice of subject matter – oil and its impact on our daily lives – has specific cultural references, not to mention related films like *An Inconvenient Truth*, which deal with our dwindling natural resources. One of the originally planned key discussions that I was not able to include in the film was perspectives from individuals who feel very strongly about the issue of oil use. If I would have had the opportunity, I would have liked to challenge the pro-oil advocates with questions about the dwindling resources and why we refuse to use more and/or better alternatives to oil. On the other hand, anti-oil advocates are generally very enthusiastic about spending time outdoors hiking, camping and so forth. I would have really liked to confront someone like that with the fact that most modern outdoor gear comes di-

rectly from oil, not to mention things like cell phones and televisions. Regardless, this is an issue that affects everyone. I tried to make that clear in the oil addiction meeting by casting a wide variety of people as the oil addicts.

My use of humor in the film clearly embraces the new documentary paradigm. First, I chose to use satire through the structural device of my character attending an addiction meeting where people are struggling with their addiction to oil. Second, I also chose to spoof *Queer Eye for the Straight Guy* (2003) and other makeover shows as a way to communicate my point. Finally, the voiceover was also written with humor in mind, as was much of the music. The purpose was to parody makeover shows, melodramatic music, and so forth.

Finally, using actors for the addiction meeting and the makeover segment clearly falls into the category of re-creations and re-enactments. Specifically, I wanted to also approach the production process in a manner resembling *Curb Your Enthusiasm* (2000) or the mockumentary films of Christopher Guest (*Waiting For Guffman*, 1996; *Best in Show*, 2000 etc.). From a practical perspective, this approach meant a rough outline of the scene was distributed to the actors. We then rehearsed and blocked the movement, often finding specific phrasing that we liked during this process. When it came time to shoot, the dialogue was completely improvised, with no script. This helped add to the documentary feel of the film. Along with actors, I also used “real people,” especially noticeable in the *vox populi* interviews (another Moore/Spurlock influence). Finally, there were several professionals onscreen in the

course of their jobs, communicating necessary information, both in the refinery, and in the two eco-sensitive stores.

As far as conveying science in the film, I included specific scientific information. First, the tour of the refinery discusses some of the chemical processes used to refine oil. On a personal note, I was disappointed that more of the refining process and the chemistry behind it could not be used in the final cut of the film. For me, as a science filmmaker, the refinery shoot was one of the highlights of the process. In a longer film, I definitely intend to return to the topic, along with computer animation, to help explain how this black, gooey substance gets turned into the lifeblood of our modern society. Second, the trips to the stores reveal several facts, such as off-gassing, that should educate many audience members. Again, there were many fascinating aspects of both stores that are not in the final cut of the film. Chief among these were insulation made from recycled denim and tiles made from recycled beer bottles. As the director, these deletions were particularly hard for me, but, ultimately, the film needed a more streamlined approach.

The film proved to be an invigorating challenge, quite unlike what I had envisioned when I started. In some respects, the problems were much closer to the ones I might find on a fiction film set, such as making sure that we got the coverage we needed of the various actors and ensuring we included all the points of the script. Another challenge proved to be running the set, not usually an issue for documentary filmmakers, but it was a terrific learning experience. I definitely wanted a few more

hours to shoot all the setups that I felt were important, but I did get the shots I needed. In the end, much of the original script ended up on the cutting room floor; the finished film contained less than half of the planned material. On the other hand, the editing process proved to be completely different from editing other documentaries such as my second year film, *Living Ice* (2003). Unlike my experience on that earlier film, I did not need to find the story – it was already scripted. In the end, though, the structure of the film completely changed to center around the makeover rather than the addiction meeting, as originally planned. Also, the conclusion of the makeover had to be “faked” with still photographs rather than a “true” makeover due to budget and time constraints. The addition of the voiceover and the music, two elements not originally planned, added an ironic, over-the-top tone to the conclusion of the film. I hope that the audience will start to ask more and better questions after viewing the film. I think one of the biggest achievements of the film is that it portrayed an average guy who did a little bit to change his world and to better use the planet’s resources. If everyone takes small steps like that, the world can truly change.

Ultimately, there is much to be done if we are to change the paradigm of science and natural history filmmaking. There is definitely room for entertainment in science films. There have already been major steps in this direction in films such as *Death by Design* or *The Elegant Universe*. My film, *Oil Eye for the Average Guy*, is intended to be another step in that process, if only a small one. I do think my film accomplishes its goals; it incorporates some of the techniques of mainstream documen-

taries in an effort to change the model of science and natural history filmmaking. My hope is that the film will encourage other filmmakers to take steps outside of the traditional conventions and expectations of the genre. If filmmakers follow that course, we can all bring about a paradigm shift towards a truly new model of science and natural history films for the new millennium.

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APPENDIX A

Top Grossing Theatrically Released Documentaries

APPENDIX A

Top Grossing Theatrically Released Documentaries (by U.S. gross)

1. Fahrenheit 9/11 (2004) \$119.2 Million
2. March of the Penguins (2005) \$77.4 Million
3. An Inconvenient Truth (2006) \$23.8 Million (through 9/8/2006)
4. Bowling for Columbine (2002) \$21.6 Million
5. Madonna: Truth or Dare (1991) \$15.01 Million
6. Winged Migration (2003) \$11.7 Million
7. Super Size Me (2004) \$11.5 Million
8. What the #\$*! Do We Know? (2004) \$10.9 Million
9. Mad Hot Ballroom (2005) \$8.1 Million
10. Hoop Dreams (1994) \$7.8 Million
11. Tupac: Resurrection (2003) \$7.7 Million

NOTE: *HOOP DREAMS* AND *TUPAC: RESURRECTION* ARE BOTH INCLUDED ON THIS LIST BECAUSE THEIR NUMBERS ARE ESSENTIALLY IDENTICAL, WITHIN AN ACCEPTABLE MARGIN OF ERROR IN REPORTING.

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