

LITERARY THEORY, THE NOVEL  
AND SCIENCE MEDIA

by

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A thesis submitted in partial fulfillment  
of the requirements for the degree

of

Master of Fine Arts

in

Science and Natural History Filmmaking

MONTANA STATE UNIVERSITY  
Bozeman, Montana

April 2008

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April 2008

## TABLE OF CONTENTS

1. INTRODUCTION.....	1
2. LITERARY THEORY .....	4
Introduction.....	4
Literary Theory and Scientific Authority .....	5
Narratives and Science Media.....	7
The Novel and Science Media .....	11
The Novel: A Definition .....	11
The Novel: Characteristics .....	13
Prose .....	14
Complex Characters Who are Transformed By Their Experiences.....	15
First-hand Experiences .....	17
Multiple Perspectives .....	18
Summary.....	19
3. CONCLUSION.....	21
REFERENCES CITED .....	24

## ABSTRACT

In this paper, the author calls on filmmakers to view science as culturally constructed, and science media as an art form with a specific *raison d'être*: to explore the culture of science. The purpose of these explorations is to destabilize science's unquestioned hegemony and to reveal new insights on human nature. Literary theory, particularly as it relates to the novel, is shown as a tool for deconstructing and critiquing current science and science media. Defining characteristics of the novel are discussed and offered as the basis for a new model of science media. It is hoped that this new model will allow science media to both hold to its *raison d'être* and successfully engage audiences.

## INTRODUCTION

In The Curtain: An Essay in Seven Parts, Milan Kundera writes about the 18<sup>th</sup> century novelist Henry Fielding who was the first to recognize the reason and being of the novel:

He tries to define the art – that is, to determine its *raison d’être*, to outline the realm of reality it should illuminate, explore, grasp: “the provision, then, which we have here made is no other than *Human Nature*.” The assertion only seems banal; readers at the time saw novels as amusing, edifying, entertaining stories, but nothing more; no one would have granted the novel a purpose so general, thus so exacting, so serious, as an inquiry into “human nature;” no one would have elevated it to the rank of a reflection on man as such. (7)

It seems that we, the makers of science films, have lost - or perhaps never originally found - our *raison d’être*. Similar to early expectations of the novel, our science media generally expects little of its audiences and offers mostly passing entertainment – experiences that might be thrilling, but that are soon forgotten. Not only do they expect and deliver little, typical portrayals create a special status for scientific knowledge by privileging it (Gardner & Young 178). Conventions of presentation do not allow an audience any room to question science; in fact, they create the impression that scientific knowledge is autonomous and exists outside of culture (Gardner & Young 176). All of this is worrisome, given that television programming is extremely influential in society’s understanding and perception of science (Gardner & Young 171).

I would like to think of science media-making as an art. I would like to believe that, like Fielding’s novel, our science media can hold fast to a *raison d’être* of weight

and value; that it, too, can illuminate an aspect of human nature and at the same time (rather than despite of) draw in and hold onto our audiences' rich imaginations.

But what is this core, this *raison d'être* of the science film? I believe it should not be an attempt to understand science, but an attempt to understand *about* science. The specifics of science change daily, they are details that generally remain unimportant to (and quickly forgotten by) all but particular members of the scientific community. It is the inner workings, the processes, the methods, the language, the behaviors, the beliefs - the culture - of science that are (or should be) of interest to the larger world. How scientific knowledge, how 'fact' is created and maintained, how it moves and is massaged, how it morphs and disappears, how it is reborn and borrowed - these are the things that I think should be the focus of our media endeavors. Why? Because we do not perceive of science, especially Western science, as a culture (Gardner & Young 176) - it has been naturalized such that scientific ideas are called 'facts', 'truths', 'rules', and 'laws.' We should question these things and we should make sure that our audiences question them as well, because unquestioned, science holds enormous power over us all; questioned, it loses some of its authority, and simultaneously becomes something that reveals truths about ourselves.

The question arises, then: how do we create media that show science as culturally constructed, while holding on to the *raison d'être* of learning something new about science and humanity in general, and still engaging our audiences? This paper explores literary theory, and specifically the novel, as an area of study that offers insights into

critiquing current science media, as well as providing some building blocks for a new model of science media that could accomplish all three provisos listed above.

## LITERARY THEORY

Introduction

A novel proposes that the world has a certain mode of existing. It doesn't propose this by asserting it explicitly, but by depicting it implicitly. (Smiley 44)

Literary theory is derived from a variety of disciplines; it provides a set of tools with which to unravel how literary texts produce the world we live in (Klages 4, 6). Many of these tools can be transferred towards reading film texts, and indeed they often are used for fiction film. James Monaco (vii) warns that this reading of films is crucial: "Film and the electronic media have drastically changed the way we perceive the world – and ourselves – during the last eighty years, yet we all too naturally accept the vast amounts of information they convey to us in massive doses without questioning how they tell us what they tell."

The tools of literary theory, like maps, help us see things in a new way: "To chart the external world is to reveal ourselves – our priorities, our interests, our desires, our fears, our biases" (Turchi 146). These maps offer explanations, and they provoke us into asking more questions (ibid). It is important that we turn these devices specifically on science media in order to understand some of our basic assumptions about the scientific world and its relation to the non-scientific world, as well as to reveal some of the principal mechanisms involved in creating and maintaining these assumptions through film.

### Literary Theory and Scientific Authority

In her book Literary Theory: A Guide for the Perplexed, Klages describes humanism as a world-view that holds that everything that we experience through our senses - everything in our world - can be investigated and comprehended through the use of our intellects; we have no need to turn to supernatural forces for explanations (11). Originating in the philosophic traditions of Plato and Aristotle, humanism underpins our concepts of science and the authority that we ascribe to it, as well as to the power of rational thought and individual achievement (ibid).

Although humanism was a leading perspective for centuries, it came under attack in recent decades for offering a subjective and impressionistic type of literary investigation (Klages 47-48). Structuralism, on the other hand, grew out of a quest for a more rigorous and objective ('scientific') form of analysis; a structuralist assessment is not interested in an author's perspective, individual texts, their readers or history (Klages 49). Instead, it is concerned with identifying the basic units of a system (often organized into binary pairs) and the rules that govern these units. Each system's structure has a center (a central truth) that is responsible for creating the entire structure; the center also limits the 'play' of the structure and its elements (Klages 55-56). Structuralism posits that the organizing mechanisms that generate the basic units and rules and that act to structure these elements come from the human mind itself rather than the external world (Klages 33). Instead of the humanist view of an external reality that can be known through our senses and described objectively by language, the (post)structuralist model

argues that the structures of our minds and the languages we create produce our subjective and relative ‘realities’ (Klages 49-51).

Using literary theory, we can re-view science as a culture – one that developed out of humanism, whose units, rules, forms and mechanisms can be identified through a structuralist analysis, and whose traditions and values can be deconstructed and analyzed using various (post)structuralist tools and perspectives (i.e. psychoanalysis, Marxism, feminism, race and colonialism, New Historicism, reflexivity, etc.).

As a culturally created entity, science (and the representations of science in various media) contains fabricated stories and characters that influence how we understand and experience science, both from the inside and from without. Through a literary analysis, the center(s) of the structure(s) of science can be destabilized, not in an attempt to destroy science or rid ourselves of it, but in order to become cognizant (both the general public and scientists alike) of the cultural origins of science and scientific thought, in order that it loses some of its unchallenged rigidity (‘truthfulness’) and its resultant powerful sway.

Humanist elements sing out from science and are distilled in our portrayals of science in the media: our science is populated by autonomous individuals who, through the power of their objective, rational mind and their dedication to the scientific method of observation, overcome adversity to discover some new universal natural law. What we term scientific fact is held up as an absolute, unshakeable, unbiased and eternal truth – something that exists outside of and separate from us. Science as we portray it, for the most part, leads us towards progress, and improves our standards and understanding of

life. Our science is good and our scientists are highly intelligent, moral beings. When science and its practitioners turn bad or harmful, it is usually because they have strayed off the golden path and have abused their powers.

Structurally, we can identify the ideas of natural laws and rational minds as being central to science; we can also identify many binary (and morally weighted) units, including but not limited to: science/art, scientist/non-scientist, active/passive, objective/subjective, rational/emotional, male/female, power/weakness, direct/indirect, right/wrong, knowledge/ignorance. The question then, is what happens to science when we remove its center(s) or when we question some of its binary units? What if the world does not exist outside of our conceptions of it? What if it is impossible to be objective? What if all truth is plural and relative? By asking these kinds of questions - by simply being aware that we can ask these kinds of questions – science is recreated. New possibilities open for our science films and for our audiences.

Literary theory offers an advantageous vantage point from which to re-view science, but at this stage it remains broad. Let us turn to narratives and the novel in particular for a more focused perspective.

### Narratives and Science Media

A novel is a hypothesis. A novelist shares with a scientist the wish to observe. A novelist also shares with a scientist a partial and imperfect knowledge of the phenomenon he wishes to observe. And so both novelist and scientist say “what if?” (Smiley 42)

Novels and science are inherently narrative. At its simplest, narrative can be defined as “a sequence of events with a beginning, a middle, and an end” (Shreeve 138).

Plot, according to Brooks (6), is a layer of form that allows us to order and explain our narratives, “with the emphasis falling on causality” (Forster 86). The plot also provides tension and conflict; without a meaningful opposing force, our stories would simply be propaganda (Tobias).

Narrative creates models of understanding for readers; combined with plot and time, multitudinous chaos becomes comprehensible and the elements of a story become interconnected and gain intensity, intention and meaning (Brooks). Narratives “engage the audience on an emotional and intellectual level, motivating viewers to want to know what happens next” (Bernard 13). According to Brooks, the origins of narrative go back to our earliest days and it is impossible to disentangle it from our everyday lives.

It is not surprising then, that we incorporate narrative and plot into our science films, particularly since science is a process, which lends itself to storytelling (Blum 26). Even scientific papers could be construed as narratives with beginnings (hypothesis), middles (methods), and ends (results and conclusions) (Shreeve 139). It is these narratives that render the complexity and tremendous scope of science less chaotic and make it more relatable and entertaining; narratives also work well in our science media because they allow people to more readily retain information (Shreeve 138).

Shreeve argues for the necessity and primacy of narrative in our science stories and counsils that the openings of our tales should be “the rabbit hole through which the reader falls out of reality and into your narrative world” (39). And it is in this world that, Shreeve (140) believes our characters should make up the matter of the narrative and where the science should simply emerge from their relations. Similarly, Ferris (v)

encourages us to use narrative when telling our science stories because “The cure for fear and loathing of science is [...] knowledge – conveyed, preferably, in stories that capture and reward an audience’s attention.” However, Shreeve (138) warns that unlike the makers of fiction writing or films, documentary filmmakers are “not free to invent plot points or character arcs and instead must find them in the raw material of real life. Our stories depend not on creative invention but on creative arrangement (...).” Narrative then, can help us in creating a structure and a rhythm around which we can shape our science films.

Narrative is a powerful tool, and one that can take on many forms. Unfortunately, in science media, we tend to limit ourselves to the hermetic type of configuration. The hermetic event, which Gilman (21) describes as offering just a temporary escape or self-substitution for the reader, is an event cut off from the wholeness of life - this happens when characters are not involved in remembering their past or looking towards the future, but live only in the present moment for the entire narrative (Gilman 31). As a consequence, characters do not transform and readers are left with a stunted, indirect experience; instead of empathy, readers are only able to feel at most sympathy for characters (Smiley 76). Bakhtin despairingly describes the epic genre of narrative as embodying this anti-novelesque perspective, which is distant, isolated, and rigidly absolute (15, 17, 21).

“All of us, not without an obscure sense of guilt, from time to time join the indiscriminating public in its addiction to accelerated and compartmentalized adventures – adventures finished and already hazy as soon as consumed. Such reading resembles

nothing so much as the passing of a freight train, an adventurous spectacle by its very nature” (Gilman 25). This type of entertainment narrative describes much of science media these days: stories focused on adventure, violence, speed and novelty as temporary pleasures in and of themselves.

Gilman (25-26) argues that this form of narrative, although not the ideal that we are striving for - offering escape rather than self-discovery, a shallow skimming instead of a profound perusal - provides a training ground for audiences, one which might eventually lead them to watch other non-hermetic types of narrative. So, although we should not dismiss these types of science stories, we should not end with them but look to our art and create an alternative model, a more ambitious one that instead of offering an escape, “(...) draws the imagination outward” (Turchi 67), and allows us to envision possibilities that were previously unconceivable.

Jerome Bruner (12) feels that the goal of literary narratives is to take what is familiar to us and to make it strange, to bring it into the light. This is a particularly important aspect of narrative and provides a good incentive to incorporate it into our films, since part of our mission should be to try to de-stabilize our culture’s traditional perceptions of science and scientists. However, part and parcel with narrative comes plot, and according to Booker and Tobias, we tend to recycle a limited number of plots (i.e. the quest, the riddle, the comedy, the tragedy, rags to riches, forbidden love, etc.). Although Tobias assures us that we need not be slave to these plots (229), shaped by conventional rules and peopled by archetypal heroes and villains, they are so fundamental to our storytelling that they are all but impossible to break away from (Booker 6-7).

Consequently, it is vital that we be aware of our narrative culture, just as it is important that we are aware of our scientific culture, in order that we recognize the well-worn paths that define us – not necessarily to break away from them, but to be conscious of them when making and viewing science films.

### The Novel and Science Media

#### The Novel: A Definition

The novel, like the documentary, is a hard genre to define. Through history, the term ‘novel’ has been applied to writings that cover a plethora of topics, that employ numerous and varied styles, and that have achieved divergent results - critically, publicly, aesthetically, and economically. Consequently, trying to pinpoint the origin of the novel is difficult, if not impossible. “It all comes down to a question of prior definition, and definitions, when claims of this sort are at stake, are notoriously self-serving” (Gilman xii). Although many people have gone so far as to identify the first novel (i.e. Don Quixote and Tom Jones are favorites, but some [i.e. Smiley, Bakhtin, etc.] would go as far back as the ancient Greeks, 11<sup>th</sup> century Japan, or even 13<sup>th</sup> century Iceland for the first novel), there has been no consensus on the issue.

In Aspects of the Novel, Forster (6) begins broadly and humorously by defining the novel as any prose of at least 50,000 words. Ian Watt is more specific when he writes that the novel first appeared in the modern period and reflects the individualistic and innovative reorientations of philosophical realism (12-13). For instance, Watt says that the first novels rejected the traditional practices and universal plots of other literary forms

(i.e. mythology, legend, history, etc.); instead, they clung to the truth of the individual (personal/private) experience, which is always unique and therefore new (13). Character types (i.e. the hero and the villain) became unique individuals with full names who were psychologically complex and changed as a result of their experiences and personal relationships (Watt 20, 24, 238). They diverged from the wooden characters typical of epics, who leave nothing to the imagination and who lack the ability to transform (Bakhtin 35). Background scenery turned into “vividly realized moments” with specific times and places (Watt 15, 24). The novel was written in prose – the language of the everyday – to authenticate its characters, locations and events, and narratives arose from multiple and varying view points which allowed for both psychological closeness to characters and more detached, evaluative musings on the part of the author (Watt 27, 296-97).

Bakhtin, whose description of the novel genre is more broadly inclusive than most others, says that the novel is something that parodies all literary genres (including itself) in that it exposes the conventions of their forms and languages (5). Bakhtin argues that novelization occurs when narratives are free and flexible, when they incorporate a dialogized heteroglossia of popular spoken languages, and when they are suffused with laughter, irony, humor and self-parody, which brings everything close and onto an equal plane with the personal experiences and thoughts of everyday contemporary life. Most importantly, Bakhtin’s ‘novels’ contain indeterminacy, their arms thrown wide open to the constantly evolving, unfinished, indecisive, spontaneous present and future of

possibilities. All of this allows the novel to offer new insights, interpretations, evaluations and perspectives on humanity.

Gilman (1) is bothered by attempts such as these to define the novel: “Definitions constrict by definition, and definitions of the novel asphyxiate;” they tend towards the rhetorical or the historical (like Ian Watt’s), all of which deny the freedom that novels should be given. Alternatively, Gilman offers an anti-definition – rather than asking what the novel is, he asks what a novel does to its readers. His answer is that a novel should enrich the surrendered reader by multiplying their existence, by offering an escape that intensifies and brings meaning to personal experiences. “The most precious blessing a text can offer is that of drawing on our experience and concentrating it into a storm far more stormy than any we can remember living through. We are then nothing less than the ‘lecteurs de nous-mêmes’” (Gilman 21).

The novel defies any one definition – though many have been offered – and it is in this lack of imposed limitations that lies the beauty of the novel. It is a genre in the making; it is the only type of literature that continues to develop and grow - it is a supergenre that swallows and mixes other genres (Bakhtin). Form is free in a novel, and a novelist’s only imperatives are to entertain (Smiley) and to cling to the genre’s *raison d’être*: to reflect on human nature (Kundera).

### The Novel: Characteristics

All of the above descriptions of the novel speak of an art that looks to find new ways to explore human nature and to entertain, to bring an audience in, and allow them the chance to experience foreign situations and characters, and thereby learn something

about themselves and others. For these reasons, the novel makes a good starting place when looking to re-create science media.

Despite the lack of consensus on a definition, there are a few key elements that most theorists seem to agree must be present in order for a piece of writing to qualify as a true novel. These elements are tools that novelists use to fulfill their dual imperatives, and it is from these fundamentals that science media could create the building blocks for a new model.

Prose: The first of these elements is prose: novels are not written with a lyrical language but with the everyday language of prose. This is done to reflect the language that we use in our daily lives, and it has the effect of making characters sound ‘normal.’ “It is hard to overestimate the importance of this quality of commonness to the nature of the novel; it enables a reader to relax with a novel as with another person, and also to feel as though the novelist might have something to say of relevance to the reader’s own common life” (Smiley 91).

Scientists tend to present their work using the formal language of their scientific disciplines. Not only can this type of language create distance between scientists and the general public, science media that uses it might lose audiences who simply do not speak or understand it. Science media that communicates mainly via prose would portray science as approachable, understandable, and ‘normal’ rather than something sacred or privileged.

The specific words and tones that are used in science media are also important. Traditionally, the tone of our films and the voices in those films (i.e. the scientists, the

narrators, the music, etc.) are moderate, assured, neutral, objective, harmonious and reasoned (Gardner and Young 178) – they present the natural truth and therefore cannot be argued with or even questioned.

[This tone] is hegemonic in the precise sense that it induces deference and organizes consent by eliciting willingness to be a passive recipient of versions of history organized and presented for our edification. [...] In short, the conventions of television's presentation of science are those of an informative lecture. The viewer is expected to be interested but unsophisticated. (Ibid)

Dissent, criticism, controversy, humor, irony, playfulness – these things are rarely incorporated into science media but offer the potential to enrich and enliven our projects, while encouraging our audiences to adopt new ways of situating themselves relative to science. The use of words that deny absolutism and that encourage questioning, tones that allow for playfulness and humor – these are the things that could engage and entertain audiences, and would also indicate to them that science is not sacred, nor should they treat it as such.

Complex Characters Who are Transformed By Their Experiences: The novel contains complex characters - what Forster (71) calls 'round' characters or what Gilman (34) describes as individuals with "a special openness, receptivity, and even vulnerability to experience [...]." Smiley (27-28) insists that if characters are not emotionally and morally complex, they possess no agency and are merely symbolic. Kundera (9) compares the heroes of epics, who "stand as examples of virtue to future generations" with the characters of novels, who "do not need to be admired for their virtues. They need to be understood (...)." Gilman (34) on the other hand disagrees with an anti-hero

description of novel characters; instead, he claims that people in novels are more than heroes: “They are immensely more sensitive and sentient than any self-conscious and be-medaled hero would permit himself to be.” Gilman goes on to say that characters in novels always have an inherent means of self-propulsion – it could be an obsession or even the noblest of vocations, but they always have something that incites them to continue moving forward on whatever path they have chosen.

Not only do novels encompass complex characters, they also provide enough space and time for those characters to undergo change. As a result of relationships and various events that unfold throughout the story, the inhabitants of novels grow – they are never the same person on page one as they are at the end of a book. Characters are confronted with conflict and they are forced to make choices - and then to live with the consequences of those choices. This is part of what makes characters so intriguing, and what allows novelists to explore and readers to learn something about human nature.

Our science films typically have a single, central character - a scientist, often white, male and the expert in their field - with whom the audience is meant to identify. The films’ stories tend to progress via dramatic incidents involving this brave character in an “...extremely limited attempt to humanize history and relies for its effect on the employment of a well-known typography of almost stereotypical dramatic characters” (Gardner & Young 189). Rarely do we see our scientist-heroes fail in their endeavors, or show much vulnerability, and seldom do we see them change as a result of their experiences. These heroes are of the epic variety, they tend not to be multi-layered, nor do they surprise us. We use these characters to make our science stories more human, we

rely on these characters to make the science less ‘boring’ and yet our scientists are wooden and their personalities stereotypical. We learn nothing from them about our culture or ourselves; at most they teach us that speed equals distance divided by time.

In science media, we tend to recycle a limited variety of character types: sometimes it is the wacky scientist, at other times, it is the adventurous hero, but rarely do our portrayals of scientists allow for complex, ‘round,’ people, nor do we give them the opportunity to change. How much more interesting would our stories be if we told them about people rather than symbols? And how much more relatable would our films be if our characters were made real enough to grow from their experiences? What aspects of human nature could we realize and delve into through our presentations of science stories with complex, multi-dimensional individuals? And how better to reveal that science is culturally constructed than to spend time with the very real people who play a role in making and maintaining that culture on a daily basis?

First-hand Experiences: Unlike other types of fiction, novels do not simply relay details about events, nor do they merely provide information regarding what characters think about various events and their personal transformations. Rather, a novel allows the reader to experience the events and the transformations first hand (Gilman 16, 23) – there is no barrier between the experience and the reader. This is a key point and one that relates back to Gilman’s anti-definition of the novel, whereby what is important is how a novel makes the reader feel. Undergoing an event directly allows a reader to bring their own past to the experience, it allows them to interpret the incident from their own perspective and gives them the opportunity to be changed by the experience.

Our science films however, tend to maintain a distance between subject and audience – information is presented objectively and clearly; emotions rarely play a role in our stories and consequently, they are shown to play no role in science. But what if we could instill in our audiences the uncertainty and nausea a young scientist experiences on their first day in a new lab, the repetitive and grinding nature of day-to-day research, the deflation that happens when a scientist opens the newest issue of *Nature* and realizes they have been scooped, or the sudden rush of adrenaline at 2am when a post-doc stares bleakly at a computer screen and recognizes an unanticipated and thrilling result to an experiment – all with the immediacy of first-hand presence? Would they not feel closer to science - like they know what it is to participate in science? Would it not also allow our characters to seem more human, more approachable, and more easily understandable? Is it not possible that we could thereby successfully engage and entertain our audiences with this storytelling technique? Could we maybe even allow our audiences the chance to change through this kind of experience?

Multiple Perspectives: As novelists move from the perspective of one character to another or from the point of view of a character to that of the narrator, they provide readers with the opportunity to know an infinite number of outlooks or truths. “Indeed this power to expand and to contract perception (...), this right to intermittent knowledge: - I find it one of the great advantages of the novel-form (...)” (Forster 81). Bakhtin (262-263) argues that heteroglossia is an inherent aspect of every novel, and that the themes of a novel flow through this multiplicity of voices – what Kundera calls a “carnival of

separate truths” (167) - providing alternatives to a single and absolute language of authority.

According to Gardner & Young (177), “the usual mode of presentation of a topic in science is narrative, linear, expository and didactic.” Voice-of-God narrations and expert talking heads exist uninterrupted and unchallenged - even by an interviewer who often remains invisible and/or unheard (Gardner & Young 177). Our science media tend to present one perspective, and because it is not a challenged perspective, it implies to audiences that it is the sole correct perspective – that of objective science.

With film, we are free to present and explore multiple and diverse perspectives visually, as well as orally, so why should we hold to this abuse-of-power model of the single authorial perspective? Why not have our own “carnival of separate truths” that disagree, provide a range of alternative views and prevent neat endings to scientific dilemmas and our films? This would come closer to the reality of the participants involved in any given scientific problem and allow viewers the opportunity to critically examine each perspective and decide for themselves who they want to trust (if anyone) and what information to believe. If one of our goals in science media is to break the hegemonic singular and authoritative voice of science, how better to do this than to present multiple and varying points of view that question each other?

Summary: If we used the four components of novels listed above - prose, complex characters who are changed by their experiences, first-hand experiences, and multiple perspectives – in our science media, we might be able to successfully engage

and entertain our audiences, while simultaneously destabilizing science's unquestioned authority and creating opportunities to learn something about ourselves.

## CONCLUSION

Art is the only social system that always carries [...] freedom, so it is of a value that cannot be overestimated, as it coexists with and counter-acts all the other systems that promote conformity. (Smiley 156)

Science provides us with incredible stories on such monumental topics as birth, death, creation and the meaning of life (Shute 35). However, according to Ferris, science writers “are too often assumed to be mere interpreters or translators rather than ‘real’ writers, as if crafting an accurate, evocative paragraph about biochemistry or quantum physics were less of an achievement than doing the same thing when the subject was a lotus blossom or a love affair” (v-vi). Just like science writers and the authors of novels, we science filmmakers are artists in our own right. We should not forget this, nor should it mean that our films are relegated to broadcasters’ dusty shelves.

Twenty-six years after Gardner and Young wrote their call to arms: “We want to argue that it is an urgent priority for television to alter its approach to these matters in fundamental ways...” (174), I find myself writing a similar summons. Science media should not simply be an entertainment product for audiences to consume and forget, but an opportunity to engage our audiences and to increase their filmic and scientific sophistication by providing them with a space to think critically about science and film. This is important for two reasons: first of all, because it helps to break the hegemony that science and film hold in our culture. And second, because our increasingly technologically- and scientifically-driven society requires that the general public be empowered to be critical of science and the media in order to make important political and economic decisions. This sentiment is echoed in part by Blum et al. (vii), when they

write, “Some of the leading issues in today’s political marketplace – embryonic stem cell research, global warming, health care reform, space exploration, genetic privacy, germ warfare – are informed by scientific ideas. Never has it been more crucial for the lay public to be scientifically literate.”

We tend to weave scientific stories of adventure and mystery populated by stereotypical heroes and evildoers; our films offer linear tales and neat conclusions. These elements help to create the impression that science is tidy, that it is pursued by epic heroes who always find resolutions to the world’s problems, and that nature is within our control. This avoids the everyday, boring, and repetitive aspects of science, which are realistic and crucial elements to acknowledge and show in our films.

Currently, the science we portray tends towards the epic and the mythic; it is not humorous or ironic; it exists outside of time and beyond our control. We need to use our artistic medium to break this mold and to create a new conception of science among scientists and the general public. Like novels, where “the protagonist, made accessible by prose and interesting by narrative and familiar by length, and then dispersed by the written word, has entered the lives and minds of millions and recreated them, at least a bit, in his or her own image” (Smiley 23), so too, does the science film offer the potential to change its audiences.

Literary theory of the novel offers an invaluable perspective that we should consider in our critiques of old forms of science storytelling and to catalyze new novelesque creations. Bernard writes:

There is opportunity across the broadest spectrum for science programming – not programs that *teach* science, but programs in which science, like history or politics, is the setting for a compelling story. [...] Fortunes are spent to bring dinosaurs to life through the magic of computer technology, but not enough resources are devoted to stories that advance beyond predator and prey scenarios. Why not present science with as much substance as possible, using storytelling to motivate viewers to want to know more? [...] Creative documentary filmmaking could make a difference, as those concerned with science literacy, including potential financiers, are aware. (84, original italics).

Given recent evolutions in technology and the rising prominence of digital multi-media in entertainment and educational spheres, this is an ideal time for exploration and change in science media. In adopting some of the novel's characteristics, some of its strengths, perhaps we can initiate a change in the way the general public conceives of and relates to science and scientists. "Through narrative, we construct, reconstruct, in some ways reinvent yesterday and tomorrow. Memory and imagination fuse in the process" (Bruner 93). With our science films, we create mental maps for our audiences, and then we ask them to live in the worlds that our maps project (Turchi 139). It is for this reason that the narratives in our films matter – for our memory and understanding of yesterday and for what we and our audiences imagine to be possible tomorrow.

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