

Absentminded Professor or Romantic Artist?

Albert Einstein arrives in
America in the 1920s. Taken
from the 1979 NOVA (PBS)
documentary *A. Einstein*.
Photo courtesy of Photofest.



The Depiction of Creativity in Documentary Biographies of Albert Einstein

By Matthew Radcliff

Abstract: Albert Einstein has been the subject of numerous biographies spanning several decades. There is a common tendency to portray him having the stereotypical characteristics of an artist. This article examines how the depiction of creativity in documentary biographies of Einstein reinforces the supposed schism between science and art. Although he stands simultaneously as a logical scientist and a creative artist, he is not portrayed as a bridging figure, allowing others to cross between the two worlds, but rather as an almost supernatural being who transcends the mundane barriers that restrict most mortals.

Keywords: art, biography, creativity, documentary, Albert Einstein, imagination, science

The year 2005 marked the centennial of what is called Albert Einstein's *annus mirabilis*, his "miracle year." The International Union of Pure and Applied Physics, the United Nations, and the United States Congress declared it the "World Year of Physics," and celebrations were organized around the globe. A number of books and at least three television programs were released to acknowledge the anniversary. Interest in Einstein, although heightened by the publicity, was not an unusual phenomenon. The preceding two years saw the release of three other television documentaries that focused specifically on the scientist, and at least three written biographies were published during the following two years. Indeed, Einstein has been a focus of considerable interest since 1919, when experimental measurements confirmed his theory of relativity. He appeared regularly in newspapers and newsreels throughout his life. Since his death in 1955, numerous biographies have been produced, including books, Web sites, films, and television programs. He is typically portrayed as the embodiment of scientific creativity, fusing the observation of nature with imaginative creativity. This essay examines several biographical documentaries of Albert

Einstein to show how he is constructed as a scientific genius, and how these portrayals reinforce the belief that science and art require opposite, even competing, abilities.

Unarguably, Albert Einstein is the world's most famous scientist. His physical features have even become a standard caricature; countless scientists have been depicted with a "wild halo of white hair, hooded eyes, characterful nose, bushy moustache, and exaggeratedly large brain-box," the description given by art historian Martin Kemp (169). This combination of wild hair and bushy moustache has become the icon of "genius" with which the word "Einstein" is synonymous. Depictions of Einstein often mention the stereotype of the absentminded professor who forgets to comb his hair or put on socks. Roslynn Haynes, in a 2003 paper on scientist stereotypes, asserts that Einstein "successfully cast himself in the role of benign, absent-minded genius" (248). She shows that this cliché predates Einstein, first emerging as vicious satire in the seventeenth century. By the mid-twentieth century, as science grew to prominence in society, the satire mellowed into a lovable comic teasing. Like all stereotypes, this characterization provides "a convenient shorthand" (244) that is commonly understood, with external traits indicating specific internal characteristics.

Terzian and Grunzke have examined the appearance of this stereotype in several film comedies of the early 1960s. By following Richard Hofstadter's distinction between intelligence, which is focused on tangible and practical applications, and the intellect, which is more contemplative and creative, the films present a simplified depiction of a scientist: "attempting occasionally to be intelligently practical, but hindered by his creativity and consuming intellectual curiosity" (Terzian and Grunzke 415). For example, the title character in Disney's *The Absent-Minded Professor* (1961) invents "flubber" and tries to find beneficial uses for it, such as making a flying car for the military and better basketball sneakers for the college. The professor's fumbling attempts to generate workable products from his invention are

matched only by his fumbling attempts to manage social relationships, illustrated by his recurring inability to remember to attend his own wedding. Success for the scientist is measured not in terms of knowledge gained, but in beneficial and profitable applications of the research. In post-World War II American films, Terzian and Grunzke argue, the scientist's intellectual creativity and curiosity overwhelm his appreciation for both social obligations and practical applications of knowledge (411).

The division between intelligence and intellect parallels the presumed split between science and art. The movies reflect society's opinion that the value of science lies in its usefulness. In contrast, art is not useful, or at least its value cannot be measured in the same terms. There is an explicit connection between art and creativity; without it, we are left with kitsch, or possibly worse, mere craft. The separation between science and art has been a source of debate for two centuries, since the beginning of Romanticism in Europe. Lorraine Daston finds that one basis for the divide lies in the changing view of the imagination between the eighteenth and nineteenth centuries. At one time, "the imagination, despite its perils, was as essential to philosophy and science—the pursuits of reason—as to the arts" (78). The development of Romantic natural philosophy, with its focus on the power of individual genius, caused a shift in how the imagination was perceived. The result was a split: on one side, science as a communal and objective description of the natural world; on the other, art as a solitary and subjective experience, introspective and intuitive, unbounded by either etiquette or the laws of nature.¹

Western culture has encoded this opposition into an origin myth that purports to explain the split. Following Friedrich Nietzsche, ancient Greek art is seen as a balance of Apollonian and Dionysian elements. The figure of Socrates, as depicted in Plato's dialogues, assumed the Apollonian aspect and removed it from the realm of art, putting it in opposition to the Dionysian. William Clark summarizes Nietzsche's view: "Socrates makes the

philosopher—or the scientist—and the artist mutually exclusive. [. . .] After Socrates, the artist could only be a Dionysian figure, tied to excess, instinct, and loss of self. Socrates gave birth to himself as the first Man of Science. He also bore his Other: the Romantic Artist” (45). These personas play out in movies: one kind being scientists, who are (or are supposed to be) primarily interested in tangible inventions; the other being free-spirited artists, focusing on personal expression.

David James described art of this type as a “quasi-religious exploration of individual consciousness.” In a comparison of films about artists, James found a consistent set of stereotypes:

The artist is typically represented as a natural genius, with a corollary set of secondary characteristics: spontaneity, generosity, and quick-temperedness, for example, and an ungoverned appetite for wine and women. Totally committed to his art, he [. . .] ignores the mores of bourgeois society and lives as a glamorous but tragic bohemian misfit whose gifts are fully appreciated only after death. (9)

The mold is used to shape artists in films as diverse as *Lust for Life* (1956), *Pollock* (2000), and *Frida* (2002), as well as the Korean *Chihwaseon* (2002).

What, then, are we to make of Albert Einstein? Unlike the typical “absent-minded professor,” whose all-consuming and impractical intellectual curiosity is a source of comedy, Einstein’s creativity is portrayed in a different manner. The narrator in *A. Einstein: How I See the World* (1991), an episode in the PBS series *American Masters*, says: “He worked more like an artist than scientist, arriving at a theory not so much by experimental deduction, but confidently, by intuition.”² In a similar vein, the A&E *Biography* on Einstein (2005) explains his appeal by declaring: “He had the air about him of being a poet or musician or writer, rather than being a scientist.” For Einstein, the intellect is not a brake, holding back the more practical intelligence; instead, Einstein is all intellect. In film and television documentaries, therefore, he is not portrayed as an ordinary scientist, or even an exceptional one. There is a heavy emphasis placed on his vaunted

visual imagination; his passionate—even bohemian—free spirit and distaste for authority; his demands for solitude; and his search for nature’s hidden harmony. In this way, he is depicted as an artist, the stereotype of creativity.

However, there is a cautionary element that is often overlooked. The story of Einstein also serves as a warning against bringing intuition and imagination into the sciences. In order to do so, the lesson reads, one must be a genius, or “an Einstein.” Instead of abilities developed over time, a process anyone can emulate, our hero must be born with great powers. For him, it is no trouble to combine the characteristics of the scientist and the artist: he succeeds despite his “unusual” methods, not because of them.³ The assumption that art and science are contradictory, that imagination and creativity have no place in science, permeates documentaries about Einstein. Indeed, it is suggested to be what makes him unique. The Einstein of the documentaries, therefore, acts as a standard against which other scientists are measured and establishes a separation of science and art into polar opposites that can be united only by a select few.

Biography and Creativity

Emphasizing Einstein’s “artistic” characteristics paints him as not only superior, but possessing qualities that are fundamentally at odds with those of other scientists. His supposedly unique capabilities are as important a point of biographies as his research results. Both the personality and the science provide the main content of the documentaries. It is the program’s structure, then, that establishes Einstein as the exception that proves the rule separating art and science. The twinned narratives of biography and creativity provide a shape to his story, driving toward the conclusion that only a “Great Man” of Einstein’s caliber can make use of the imagination in science.

All documentaries organize selected events and information to make a specific point. They provide a frame through which to view the subject—in this case, science and scientists. Roger Silverstone has examined how the narrative structure of a BBC *Horizon* pro-

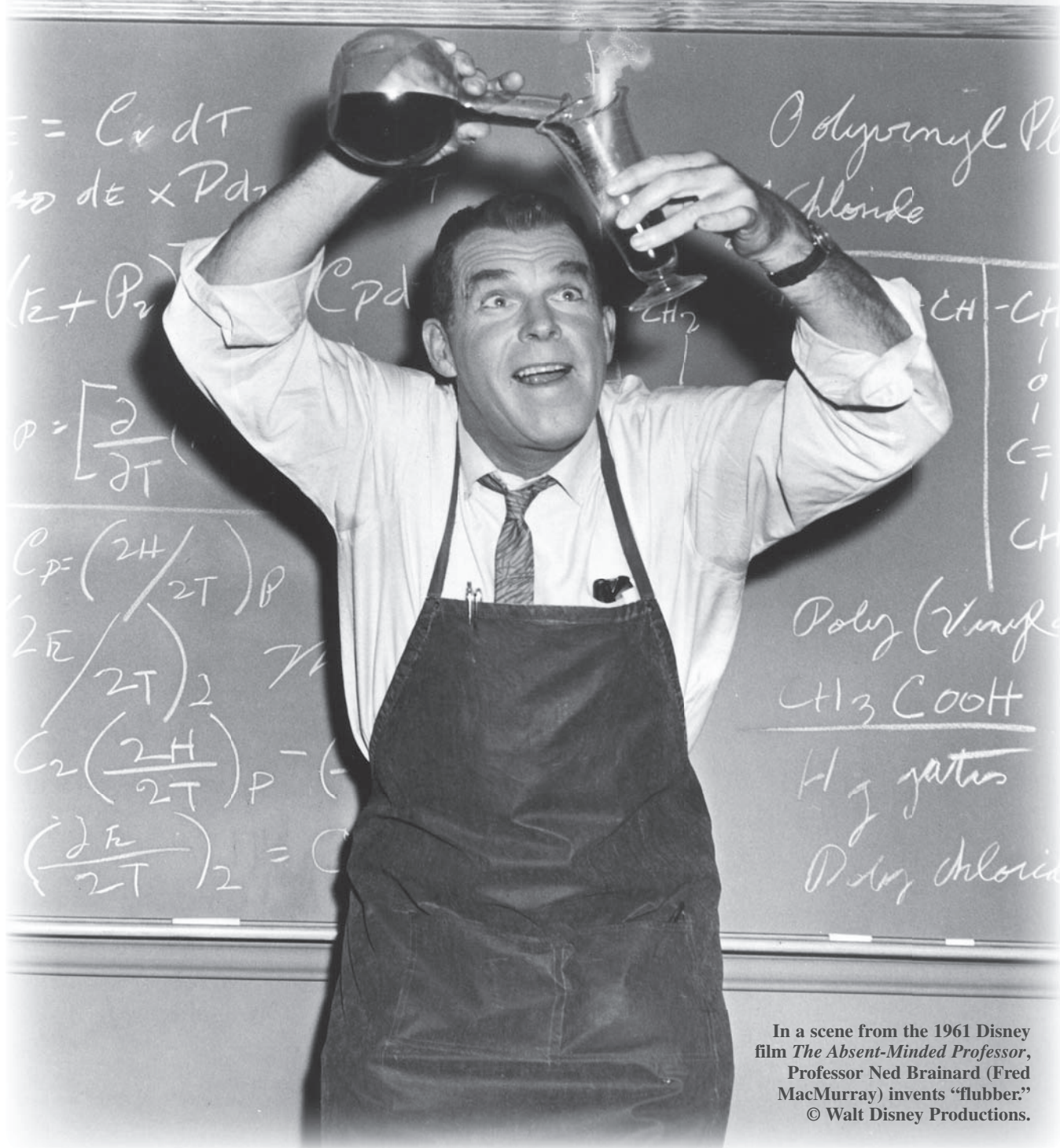
gram acts as a “frame which invites the viewer to place both the programme and the reported theories and experiments in a specific extra-filmic and ideological location” (386–87). Even if the commentary suggests uncertainty or an alternate explanation, it is outweighed by the flow of the narrative, which anticipates a resolution of a specific kind. “It is television and not science which defines the frame” (393). While the progression of scenes is often meant to be a mimicry of the process of science—hypothesis, experiment, and verification—it is the narrative that provides closure to the story, whatever the state of the science might be.

The standard biographical form assumes a narrative arc where a single event (or small series of events) serves as the spark that ignites the hero, propelling him or her to greatness.⁴ The biographical incident acts as a rupture with the past and the basis for future success. According to Thomas Söderqvist, the typical biographer emphasizes these few instances at the expense of other events in the life of the subject: “The daily routines do not really matter. What matters for them is the significant moment—the moment of discovery, the moment when a new model of Nature was conquered and possessed” (73). A focus on the “significant moment” will overlook or even cover over the nondramatic progression of small events that shape the life of an individual. For example, most documentaries about Einstein use the gift of a compass at age five to explain the origin of his famed curiosity. The film *Albert Einstein* (1970) refers to the compass, “a mysterious box with a magic needle,” as the tool that awakens his creativity, eventually leading to his groundbreaking theories: “The boy was silent, his mind racing with ideas. For the first time, he sensed that there were things in nature that could not be seen, could not be touched, could barely be imagined. He is filled with a burning desire to learn.” Both *Einstein Revealed* (1996) and *Albert Einstein: The Education of a Genius* (1974) use the same phrase to express his thoughts: “something deeply hidden had to lie behind things.”

This is the promise of the biography, to uncover the private life of its subject, pulling back the curtain to show the “real” personality. As David Nye says in his “antibiography” of Thomas Edison: “[T]ypically, biography moves from public documents and images

toward private, ‘definitive’ documents” (16). The private identity is given a privileged position and used to explain the acts of the public persona. Therefore, we measure the value of a biography by how well the private character is unmasked. The PBS documentary *Ein-*

stein Revealed (1996) was advertised as being based on “newly discovered letters” between Albert and his first wife, Mileva, which were said to “shed light on his bold thought experiments and forbidden loves.” A later program, *Einstein’s Big Idea* (2005), dramatized



In a scene from the 1961 Disney film *The Absent-Minded Professor*, Professor Ned Brainard (Fred MacMurray) invents “flubber.” © Walt Disney Productions.

this period of his life, setting the stage for the emergence of his theory of relativity. We are shown the “real” Einstein, reassuring his wife over finances, chatting in a coffee shop with his friends, and being denied a promotion at the patent office by his boss. Revealing the private life of the subject, a hallmark of the “Great Man” biography, serves to emphasize his uniqueness by the very need to personalize him.

It is common for the “significant moment” to be dramatized as a cross-over between the private and public sides of the subject. In many films about artists, certain scenes are staged to mimic well-known paintings of the artist, or at least recognizable portions of them, with the implication that the depicted events served as the inspiration for the paintings. A similar method of dramatizing events applies to discoveries, whether artistic or scientific. For instance, the development of Jackson Pollock’s signature painting technique is presented in *Pollock* as originating

from a drop accidentally falling on the floor. This single event, like Einstein’s compass, functions as the source for Pollock’s future accomplishments.

Discovery occurring through luck, rather than skill or creativity, appears as part of the absentminded professor stereotype. The socially awkward academics in 1960s films studied by Terzian and Grunzke often reach their discoveries through lucky accidents such as electric shocks or haphazard explosions. Reducing the process of creative thought to a moment of chance is a way of undercutting the intellect, transforming it from an active agent to a lucky bystander. This is a common occurrence in visual depictions of science. Because the vast majority of science films are descriptions or explanations of previous work, we do not see an ongoing process. Instead, we are shown reenactments of previous experiments. The slow processes of trial

and error, with an emphasis on error, are reduced to quick and undeniably correct experiments. The time that it takes to perform an experiment is collapsed, the skill downplayed, minimizing or erasing the traces of production.⁵ Equipment does not need to be tested or calibrated, everything works on the first try, and most important, there is no need to interpret results—scientists need only to explain them. The imaginative abilities required to make sense of jumbled data are erased in favor of reading definitive answers.

The collapse of time, compressing a complex event or series of events into a single moment, figures prominently in stories about creativity. We

There is a heavy emphasis placed on [Einstein’s] vaunted visual imagination [and] his passionate—even bohemian—free spirit and distaste for authority.

may speak of the creative process, but instead of emphasizing the slow construction of ideas, we refer to a sudden moment of insight. This occurrence is most commonly described as a “eureka moment,” or what Howard Gruber calls an “aha experience” (41). The spontaneity of the event is an important part of the narrative of creativity, as is its rarity—it is commonly thought to happen only a few times at most in a lifetime. The moment of insight typically marks a revelation after which everything is perceived differently. This pattern is strikingly similar to the shape of biographical narratives, which hinge on specific incidents in the life of the subject. The legend of the apple falling onto Isaac Newton’s head is a prime example of such a singular event: it happened once, it happened quickly, and nearly coterminously with the impact, Newton “discovered” gravity. The rest of

his work then flowed from this single tradition-shattering moment.

The history of science is filled with these legends, all the way back to Archimedes stepping into his bath and instantly realizing a way to measure volume. Gruber analyzes several cases, showing the process behind each breakthrough. Ideas are formed, forgotten, remembered, and reorganized, until a moment when an answer seems to come out of nowhere. The examples Gruber cites show that an answer only seems spontaneous because thinking about the problem had become second nature. The “eureka moment” appears to be sudden, rapid, and new, he writes, because it “is a summation of work already done,

a re-cognition. Important summaries are often overtures to new phases of work, and in the end all that may remain in memory is a series of such summaries” (50). Our memories and our stories erase the traces of how we produce our thoughts, condensing a drawn-out process of active thinking into a spontaneous, and somewhat passive, moment of

inspiration received in a lightning-like flash. While there may be dramatic reasons for compressing the drawn-out process of experimentation into a short, spectacular episode, doing so changes the conveyed connotations. We move from a view of science as requiring the imagination just like any other human creation (e.g., literature or art) to one where there are only a few discrete moments of creativity.

Einstein as Artist

The figure of Einstein established by the documentaries is described as being “like an artist” (*How I See the World*). He was a scientist because of what he worked on (theoretical physics), but he was characterized as an artist because of how he worked (by intuition). The connection forged in the early 1800s between imagination and artists was nearly exclusive, with the exception of those few scientists, Einstein included,

who were perceived to be revolutionary in their thinking. *The Education of a Genius* (1974), for instance, goes to great lengths to describe the important role that his visual imagination played in developing his theories. "He seemed to live in a world of images, not words," we are told, manipulating objects of the imagination as if they were "shapes in a puzzle." We are given Einstein's own self-description: "I very rarely think in words at all." With the fortuitous exception of his final year before university, schools "had no way to recognize or use Einstein's visual capacity." The one year at a Swiss school "was to mark a turning point in Einstein's development" because the school believed that conceptual thinking is based upon visual understanding. They encouraged the use of diagrams and visual aids; the lab equipment triggered his memory of the compass and childhood questions of mysterious forces.

After his formative years, the imagination still played an important role for him. "Einstein's visual gift was sharpened by demands" of his job at the Swiss patent office, which also allowed him "the opportunity to think about physics." And *thinking* about physics is what made him famous: "Thought experiments kept intruding into his consciousness. Everyday sights fed his imagination." Einstein's thought experiments were his quintessential work method and were the basis for topics as diverse as his 1905 and 1915 papers on relativity and his 1926 paper explaining why streams tend to curve in serpentine shapes instead of following the maximum downward slope of the ground. The narrator reads Einstein's recollection of the latter: "I began with a little experiment which anybody can easily repeat. Imagine a flat bottomed cup full of tea [. . .]" At the end of the film, it is stressed that "the secret to Einstein's genius [lies in] his playful visual imagination," an important part of the "delicate flower" of the human intellect.

As mentioned previously, intellect is the impractical and often suspect side of intelligence. Along with the imagination, its association with artists reaches back to the early Romantic era. Robert

Jones also finds similarities in the depictions of a scientist and an artist in two British films, respectively *The Man in the White Suit* (1951) and *The Horse's Mouth* (1958). Both films starred Alec Guinness as "an heroic outsider dedicated solely to his work" (140). Jones traces the connection back to Mary Shelley, who modeled her scientist, Victor Frankenstein, after Romantic poets, particularly her husband, Percy Shelley, and Lord Byron. While Einstein is not portrayed as a "mad scientist," he is often given the characteristics of a Romantic artist (e.g., imaginative creativity) from which Frankenstein was extrapolated. Our modern notion of genius also comes from the same source and implies the elevated status of the "Great Man." Its association with Einstein further reinforces the restriction of creativity to select scientists.

The picture of the Romantic artist is that of an unfettered free spirit, scorning social institutions and norms. Art critic Rosalind Krauss points to the "nineteenth-century view that artistic greatness is the function of an ecstatic imagination" (186). John Berger, in an essay objecting to the myth of the artist as "a wild, unoriented man," quotes an unnamed critic: "It was the madness of Van Gogh as it is the folly of lovers to be caught up in a fiery, passionate, relentless attempt to discover a self that always invites but ever resists possession. Folly perhaps, but once tasted, a transcending obsession" (20). We see in society's depiction of the artist, and more broadly in the figure of the genius, an incredible passion and a determination to follow a set path despite any possible consequences.

Einstein's courtship with Mileva is a symbol of his passionate spirit. *Einstein's Big Idea* dramatizes their early years together, portraying them as "two young, radical, bohemian experimenters." The same characterization is present throughout *Einstein's Wife* (2003). He anticipated a life devoted to physics, writing that after marriage, "we'll diligently work on our science together so we don't become old philistines." A&E's *Biography* highlights the "playfulness" that is exhibited in their early letters, and underscores

the dual focus of their lives. They were "passionate about each other, but also passionate about physics," swinging from love poetry to discussions of thermodynamics. The image of a passionate, unfettered Einstein, with complete confidence in his theories, is projected in all the documentaries. In some instances, the focus is on dramatizing a bohemian rebel, "a young, energetic, dynamic, even sexy Einstein" (*Einstein's Big Idea*). Others, such as *Einstein Revealed*, depict an elderly Einstein reminiscing about his youthful ardor with a twinkle in his eye. While the publication of the Albert-Mileva love letters gave the filmmakers more to draw from, the portrait of Einstein as a bohemian was prominent even in 1974 in *The Education of a Genius*. His regular attendance at the local coffeehouses is contrasted with his irregular attendance of university lectures.

His distaste for school ties in with the belief that genius can be neither learned nor taught. Several of the documentaries highlight his disregard for his teachers, who appeared to think "that physics had stopped seventy years" before (*Einstein Revealed*); even as a child, he was a "rebellious and independent thinker" who refused to be "cowed by authority" (*How I See The World*). Both the 1979 *A. Einstein* and the 1996 *Einstein Revealed* say he went "his own way," regardless of the criticism of his colleagues. Einstein's struggles against authority are captured in his famous quote: "Great spirits have always encountered violent opposition from mediocre minds," which opens *The Life and Mind of Albert Einstein* (1996). Alberto Elena has surveyed the ubiquity of scientists fighting the system in biopics, and George Custen has demonstrated the trend for other professions as well. Innovation, and the inevitable resistance from others, are what mark the main character as unique.

To accentuate his individuality, the hero is often portrayed as an outsider of some kind. Given Einstein's active advocacy, this is not an easy feat, but the documentaries characterize him as isolated politically, scientifically, and

socially. We are told in *A. Einstein* (1979) that his pacifism during World War I caused a split with other German scientists, most of whom had signed a prowar manifesto. His very public refusal to testify before Joseph McCarthy's House committee and his calls for nuclear disarmament set him apart in the 1950s, prompting *How I See the World* to declare, "[H]e was somewhat out of tune with the spirit of the times." Much is made of Einstein's fame and appearances in newsreels, yet the documentaries only briefly mention his activities within the science community, such as organizing international meetings. At many stages in his life, Einstein is depicted as being cut off from the scientific community: during his time in the patent office while working on Special Relativity, and his later efforts to build a Grand Unified Theory, it is said that he did not read science journals or keep up with new developments such as quantum mechanics. The image we are left with is an individual "scientist sitting at his desk, divining the laws of the cosmos" (*Biography*).

The solitary nature of the genius is responsible for what Caroline Jones calls the "romance of the studio," which is the perception of the artist's studio as a sanctuary. The studio, whether a physical location or a metaphorical inner place, functions as a shelter to ward off the "constraints of the age" (4). It is a place safe from commercial drudgery, where creativity can be loosed in isolation and security. The mythical Einstein, too, is given a haven: his country house in Germany, "which he called his hut," was a place where he could retreat to nature and "work undisturbed" (*How I See the World*). The documentaries also point out his fondness for sailing alone, which was "Einstein's way of escaping all intruders. With relaxation would come solutions to his epochal thought experiments" (*The Education of a Genius*). The long walks he took through the woods, another oft-mentioned retreat, reveal the mythical location of Einstein's private studio. As he tells the students in *Albert Einstein* (1970), "Don't worry about interrupting me—my work is waiting up here

in my head. As soon as you leave, I can go right back to it." This mental retreat was in evidence as a young boy, who was "self-sufficient and thoughtful" (*Biography*), and as an old man, whose final years were "spent in solitude and reflective thought" ("Einstein Dead"). The studio is also a factor in the mystique of the patent office, with Einstein as the daydreaming employee, attempting to "ferret out the mysteries of the universe" ("Einstein Dead").

The ambition of Romanticism, according to Maurice Bowra, was "to find through the imagination some transcendental order which explains the world of appearances" (22). Einstein's search for the harmony hidden in nature is repeatedly mentioned in every documentary. Supposedly motivated by the "mysterious" compass, the scientist's lifelong quest was "to grasp the hidden design, the underlying principles of nature" (*How I See the World*). As part of this quest, he "sought to bridge the polarities in nature" and find the presence of "unity behind divergent phenomena" (*The Education of a Genius*).

His search for the underlying unity and order in the universe, we are told, was focused on simplicity, beauty, and generality; that is why he believed his theories of relativity were correct. The source of Einstein's simplicity, as shown in the documentaries, is that he remained a child at heart, with an innocence and curiosity that allowed him to ask the simple questions and provide the "deceptively simple formula [which] revealed a hidden unity, buried deep in the fabric of the universe" (*Einstein's Big Idea*). *The Education of a Genius* puts it best: "The secret of Einstein's genius may well lie in his simplicity, his childlike curiosity, his complete concentration, his playful visual imagination, and his openness to the symmetry of nature."

The untainted genius who retains the innocence of childhood is capable of seeing the world in a new way. Creativity, in the sense of originality, is premised on this very ability. Rosalind Krauss has examined this connection in her study of the avant-garde and its myth of originality: "More than a

rejection or dissolution of the past, avant-garde originality is conceived as a literal origin, a beginning from ground zero, a birth." The artist is not, however, a regular newborn; he arises from an act of "absolute self-creation." In a sense, it is the power of his own genius that provides the originating spark of creation. With this act, he cleaves himself from the flow of time and transcends the course of history—and the true artist will do this again and again. "The self as origin," Krauss writes, "is safe from contamination by tradition because it possesses a kind of originary naïveté" (157).

If the essence of genius is such that it cannot be communicated, then it cannot be taught; and if it cannot be taught, then it cannot be learned. Genius, therefore, is an innate talent: one must be born a genius.⁶ Simon Schaffer's article on genius investigates how the Romantic philosophers built on Kant's idea that genius was something "given to a man at birth" (83). Irving Babbitt, in his essays on creativity, argues that this development culminated in an opposition between imitation and spontaneity. From the concept of spontaneity, he argues, grows our notion of creativity (3).

As mentioned previously, creativity is depicted via the "eureka moment," the sudden and spontaneous flash of insight. Spontaneity (and therefore creativity) acts as a signifier of genius for both artist and scientist. There is the legend of Newton's apple; there is also Monet painting haystacks, one after another, each capturing different lighting. Krauss cites an admirer who praised several paintings "as 'the work of an instant,' the specific instant being 'that flash' in which 'genius collaborated with the eye and the hand' to forge 'a personal work of absolute originality'" (167). In contrast, Krauss describes the meticulous efforts made over days, if not years, to achieve a rough, sketchlike effect. The result appeared to be an instantaneous and originary act of genius (167). Caroline Jones also has investigated the fetish of spontaneity. The paint itself, she contends, is a signal of genius: the "lack of finish conveys in

its very sketchiness its status as mere approximation of the divine internal design, or, alternatively, serves as testamentary evidence of the hurried, spontaneous inspiration of its artist-creator" (9).

Science has its own "sketch-like" marks that reveal the presence of genius, namely, the back-of-the-envelope calculation. Not only do they indicate spontaneity, using whatever material is close at hand; they also imply a superior ability to quickly derive a solution. Documentary depictions of Einstein are filled with references to his "sudden insights." Answers to questions come to him "all of a sudden," we are told repeatedly. The most common example is the theory of relativity, which comes to him while out walking, talking with a friend about the nature of light. Einstein relates the moment of clarity in *Einstein Revealed*: "But as I spoke, the answer came to me. I stopped in mid-sentence and ran home." (In *Einstein's Big Idea*, we are treated to a rare instance of a woman possessing this ability when Lise Meitner is shown on a ski slope quickly doing a calculation to prove that atomic fission had occurred.)

The physical presence of the creator is an important mark of genius. This derives from the Romantic belief in a connection between the powers of genius (both mental and physical) and the powers of nature. Simon Schaffer gives the example of the analogy drawn between the flash of creativity and the flash of lightning, which appeared to be combined in Galvani's experiments on "animal electricity" (91). Mind, body, and nature were believed to be interrelated, leading the natural philosophers to use themselves as ideal test subjects. One immediately thinks of Timothy Leary and the acid tests of the 1960s. It is this "auto-experimentation" that Schaffer declares "the most characteristic aspect of Romantic natural philosophy." By the end of the nineteenth century, however,

such *physical* auto-experimentation was judged "unscientific" (92).

The indicator of spontaneity, the "sketch-like" mark, is the descendant of the auto-experiment tradition. Scientists may have shunned the physical manifestations of auto-experimentation, but these signs were embraced by the art community. A painting, Caroline Jones says, leaves behind a "trace of its maker's hand" (9) through thickly applied paint, visible brushstrokes, or the simple appearance of speedy construction. The emergence of performance art in the twentieth century is another example of physical auto-experimentation. The conceptual art of Yoko Ono is an interesting twist in which the artist is denied the status of genius; instead, the audience is expected to perform the

Simplicity is at the core of Einstein's image, both in physics and in his public perception.

experiment, which might be physical, mental, or both.

The scientific thought-experiment is intimately associated with Einstein. The questions he asked focused on finding the "hidden design" (*How I See the World*) or the "underlying principles" (*The Elegant Universe*) that he was sure would explain the confusing tangle of late-nineteenth-century physics. Thomas Kuhn, in an essay on thought experiments, asserts that their actual purpose is to resolve contradictions in the mind of the experimenter. He writes, "the new understanding produced by thought experiments is not an understanding of *nature* but rather of the scientist's *conceptual apparatus*" (242). In other words, these are not just experiments performed *in* the mind of the scientist, but are experiments *on* the mind of the scientist. They are the mental equivalent of the auto-experiments

performed by (and on) the Romantic geniuses in the early nineteenth century.

Einstein as Hero

By virtue of being the subject of a biography, Einstein is placed in the hero's position. James Combs, in a study of heroism in 1970s television historical biographies, found four common themes: simple virtue, causality, responsibility, and charisma (13). These attributes define a character as a hero, someone similar to us yet superior, and are a common formula in American popular biographies.

Simplicity is at the core of Einstein's image, both in physics and in his public perception. We are often told that he searched for the simplest equations that would describe the universe, saying in *Einstein Revealed* that "there is nothing mysterious or unreasonable [in relativity], but very few believe me when I tell them it's that simple." Several films call his equations and thought experiments "deceptively simple," while implying that they are only simple to a mind such as Einstein's. In *How I See the World*, we are also told that the preference for simplicity extended into his personal life: being a man of "simple pleasures," he did not wear fancy clothes or even, often enough, socks. Through all his fame, *Education of a Genius* tells us, "the greatest scientist of our century remained simple and unassuming in his person."

Another topic included in nearly every documentary is Einstein's involvement with the atomic bomb. It was his famous equation, we are told, that enabled the technology to be developed, and his letter to President Roosevelt was the driving force that instigated the U.S. project. *Einstein's Beautiful Equation* (2005) uses the drafting of the letter as the central act that structures the rest of the film. While most of the documentaries note that he had no actual involvement in building the

bomb, they still emphasize a sense of responsibility for the end result. *How I See the World* makes his “enormous ethical commitment” a structuring element to the film, saying: “Einstein did not feel guilty about his science, but he did feel guilty,” and that he was “burdened by the misuse of what he loved the most.”

On the last attribute, charisma, Combs writes that “the charisma must extend beyond the leadership of men to the attraction of women” (15). Einstein’s appeal to the public, which rests largely on his avuncular charm, has continued unabated since 1919. Recent films stress his interactions with women, ranging from portraying his youthful passion for his first wife to describing his numerous affairs. We are given the impression that Einstein “possess[es] a ‘personal power’ that people are drawn to” (14). This emphasis is in keeping with the escalation of the “Great Man” theory of history that Combs found in TV biopics: “the well springs of greatness flow from the hero’s personal, not public, virtue” (17).

Using sexual charisma or another internal attribute as a metaphor to explain the biographical subject’s public actions is quite common; for instance, the theme was used recently in *Pollock*. However, the frame that is established by these anecdotes necessitates a certain interpretation of the story. Custen describes the “dual function” that is in effect: “It both proclaims an episode as true while, as part of a larger pattern of a body of other films, valorizing it as natural” (17). By depicting Einstein in the manner of an artist—imaginative, passionate, unorthodox, solitary, and transcendent—standing in contrast to other scientists, the documentaries support the stereotype of science as something that stands in opposition to art.

It is common in biopics, Custen finds, for the main character to be an innovator, fighting an outmoded establishment. Although the innovation invariably arises from the aspect of the hero’s personality that deviates from the supposed community standard, the status quo is ultimately reinforced: “The public is meant to take innovation-as-

deviation as the price of greatness, a price too high for the average spectator to accept and still be a member of the community” (74). There is a mismatch in the Einstein documentaries, which are internally split over his creativity.⁷ He is held up simultaneously as the ideal scientist and as a unique and special case, beyond the reach of average mortals. Those scientists who are not “artists”—who are not “Einsteins”—the moral goes, should stick to normal methods of science and concentrate on practical research, not pie-in-the-sky daydreams. The imaginative intellect, hailed as the genius of Einstein, is still viewed as suspect when in the hands of an ordinary scientist.

NOTES

1. Lorraine Daston and Peter Galison have written an impressive series of essays on the history of the imagination and its connection to the notion of objectivity. See Lorraine Daston and Peter Galison, “The Image of Objectivity,” *Representations* 40 (1992): 81–128; Lorraine Daston, “Objectivity and the Escape from Perspective,” *Social Studies of Science* 22.4 (1992): 597–618; Peter Galison, “Judgment Against Objectivity,” *Picturing Science, Producing Art*, ed. Caroline Jones and Peter Galison (New York: Routledge, 1998) 327–59.

2. Quotations from the documentaries studied in this essay are from transcripts prepared by the author, with the exception of *Einstein Revealed*, *Einstein’s Big Idea*, and *The Elegant Universe*, which were downloaded from the NOVA Web site <<http://www.pbs.org/wgbh/nova/transcripts>>.

3. A NASA Web page by Dr. Tony Phillips on Einstein’s miracle year of 1905 gives the impression he reached his groundbreaking results in an original way; however, this originality was not through a fresh, creative approach that allowed new insight, but because of his “irreverent [. . .] disregard for authority.”

4. Stories about science are usually told through the narrative of a “hero quest,” portraying a single exceptional individual teasing out the answer to a mystery. Roger Silverstone has described how closely one particular BBC *Horizon* program follows the pattern of the mythic journey. Following Vladimir Propp’s model of the folktale, the scientist—heroes are dispatched on a “quest,” undergoing several trials with the aid of helpers and the hindrance of villains, and finally returning with a solution or answer (Propp 26–65; Silverstone 390–92). Geoffrey Cantor has analyzed biographies of Michael Faraday, which cast him as either a “Romantic” or “Realistic” hero. The former

draw explicitly from the Romantic literary tradition to describe Faraday’s life. The latter are antiromantic, following an up-by-the-bootstraps narrative of Victorian self-help philosophy (172).

5. As the practical activity of science vanishes from a documentary, Silverstone notes that the program will focus instead on the “images of its effects.” These images will be contextualized in a standard way: through “establishing exteriors, illustrative cutaways, images of non-specific activity and so on” (389). The reliance on such “b-roll” is an example of what Rosenstone calls a “double tyranny [. . .] of the necessary image and perpetual movement” (1180).

6. In *Arrowsmith*, Sinclair Lewis made the connection among scientists, artists, and genius: “To be a scientist is like being a Goethe: it is born in you” (qtd. in Haynes, *From Faust to Strangelove*, 298).

7. Juan Suarez describes a counter example in *Scorpio Rising*, where the mismatch is used to open up a stereotype, allowing a queer reading of motorcycle gangs and pop culture.

WORKS CITED

- The Absent-Minded Professor*. Dir. Robert Stevenson. Walt Disney Productions, 1961.
- A. *Einstein*. NOVA. Videocassette. PBS, 1979.
- A. *Einstein: How I See the World*. American Masters. Dir. Richard Kroehling. Videocassette. PBS, 1991.
- Albert Einstein*. 16mm. McGraw-Hill, 1970.
- Albert Einstein: The Education of a Genius*. Dir. Harold Mantell. 16mm. Films for the Humanities, 1974.
- Babbitt, Irving. *On Being Creative and Other Essays*. New York: Biblio and Tannen, 1968.
- Berger, John. “The Myth of the Artist.” *Artist, Critic and Teacher*. Ed. Paddy Whannel. London: Joint Council for Education through Art, 1958. 17–22.
- Biography: Albert Einstein*. DVD. A&E, 2005.
- Bowra, Maurice. *The Romantic Imagination*. Oxford: Oxford UP, 1961.
- Cantor, Geoffrey. “The Scientist as Hero: Public Images of Michael Faraday.” *Telling Lives in Science: Essays on Scientific Biography*. Ed. Michael Shortland and Richard Yeo. Cambridge: Cambridge UP, 1996. 171–93.
- Chihwaseon*. Dir. Im Kwon-taek. Kino International, 2002.
- Clark, William. “On the Professorial Voice.” *Science in Context*. 16.1 (2003): 43–57.
- Combs, James. “Television Aesthetics and the Depiction of Heroism: The Case of the TV Historical Biography.” *Journal of Popular Film and Television* 8.2 (1980): 9–18.

- Custen, George. *Bio/Pics: How Hollywood Constructed Public History*. New Brunswick: Rutgers UP, 1992.
- Daston, Lorraine. "Fear and Loathing of the Imagination in Science." *Daedalus* 127.1 (1998): 73–95.
- "Einstein Dead." *Greatest Headlines of the Century*. Dir. Sherm Grindberg. 16mm. Official Films, 1960.
- Einstein Revealed*. NOVA. Dir. Peter Jones. Writ. Tom Levenson. DVD. PBS, 1996.
- Einstein's Beautiful Equation*. Videocassette. The Science Channel, 2005.
- Einstein's Big Idea*. NOVA. DVD. PBS, 2005.
- Einstein's Wife*. Dir. Geraldine Hilton. DVD. PBS, 2003.
- The Elegant Universe*. NOVA. Dir. Joseph McMaster. DVD. PBS, 2003.
- Elena, Alberto. "Exemplary Lives: Biographies of Scientists on the Screen." *Public Understanding of Science* 2 (1993): 205–23.
- Frida*. Dir. Julie Taymor. Miramax, 2002.
- Gruber, Howard E. "On the Relation between 'Aha Experiences' and the Construction of Ideas." *History of Science* 19 (1981): 41–59.
- Haynes, Roslynn. "From Alchemy to Artificial Intelligence: Stereotypes of the Scientist in Western Literature." *Public Understanding of Science*. 12.3 (2003): 243–53.
- . *From Faust to Strangelove: Representations of the Scientist in Western Literature*. Baltimore: Johns Hopkins UP, 1994.
- Hofstadter, Richard. *Anti-Intellectualism in American Life*. New York: Knopf, 1962.
- The Horse's Mouth*. Dir. Ronald Neame. 1958. DVD. Criterion, 2004.
- James, David. "Art/Film/Art Film." *Film Quarterly* 59.2 (2006): 4–17.
- Jones, Caroline A. *Machine in the Studio: Constructing the Postwar American Artist*. Chicago: U of Chicago P, 1996.
- Jones, Robert A. "The Scientist as Artist: A Study of *The Man in the White Suit* and Some Related British Film Comedies of the Postwar Period (1945–1970)." *Public Understanding of Science* 7 (1998): 135–47.
- Kemp, Martin. *Visualizations: The Nature Book of Art and Science*. Oxford: Oxford UP, 2000.
- Krauss, Rosalind. *The Originality of the Avant-Garde and Other Modernist Myths*. Cambridge: MIT P, 1985.
- Kuhn, Thomas. "A Function for Thought Experiments." *The Essential Tension: Selected Studies in Scientific Tradition and Change*. Chicago: U of Chicago P, 1977. 240–65.
- The Life and Mind of Albert Einstein*. Videocassette. Educational Distributors of America, 1996.
- Lust for Life*. Dir. Vincent Minnelli. MGM, 1956.
- The Man in the White Suit*. Dir. Alexander Mackendrick. 1951. DVD. Anchor Bay, 2002.
- Nye, David E. *The Invented Self: An Anti-Biography, from Documents of Thomas A. Edison*. Odense, Den.: Odense UP, 1983.
- Phillips, Tony. "Was Einstein a Space Alien?" *Science @ NASA Headline News* 23 Mar. 2005. 18 Mar. 2006 <http://science.nasa.gov/headlines/y2005/23mar_spacealien.htm>.
- Pollock*. Dir. Ed Harris. Sony Pictures Classics, 2000.
- Propp, Vladimir. *Morphology of the Folktale*. Trans. Laurence Scott. Ed. Louis A. Wagner. 2nd ed. Austin: U of Texas P, 1968.
- Rosenstone, Robert A. "History in Images/History in Words: Reflections on the Possibility of Really Putting History onto Film." *American Historical Review* 93.5 (1998): 1173–85.
- Schaffer, Simon. "Genius in Romantic Natural Philosophy." *Romanticism and the Sciences*. Ed. Andrew Cunningham and Nicholas Jardine. Cambridge: Cambridge UP, 1990. 82–98.
- Silverstone, Roger. "Narrative Strategies in Television Science—A Case Study." *Media, Culture and Society* 6 (1984): 377–410.
- Söderqvist, Thomas. "Existential Projects and Existential Choice in Science: Science Biography as an Edifying Genre." *Telling Lives in Science: Essays on Scientific Biography*. Ed. Michael Shortland and Richard Yeo. Cambridge: Cambridge UP, 1996. 45–83.
- Suarez, Juan A. "Pop, Queer, or Fascist? The Ambiguity of Mass Culture in Kenneth Anger's *Scorpio Rising*." *Experimental Cinema, the Film Reader*. Ed. Wheeler Winston Dixon and Gwendolyn Audrey Foster. New York: Routledge, 2002. 115–37.
- Terzian, Sevan G., and Andrew L. Grunzke. "Scrambled Eggheads: Ambivalent Representations of Scientists in Six Hollywood Film Comedies from 1961 to 1965." *Public Understanding of Science* 16.4 (2007): 407–19.

Matthew Radcliff is an independent filmmaker living in Washington, DC. He earned his MFA in Science and Natural History Filmmaking from Montana State University in 2006. His most recent film, *Inland Seas*, a documentary on water in the Great Lakes region, premiered in April at Discovery World at Pier Wisconsin in Milwaukee.

Copyright of Journal of Popular Film & Television is the property of Heldref Publications and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.