Chapter 1
Fleas on the Shoulders of Giants

Hey, traditional animator. Yeah, you! The Digital Age is here. No, seriously. Put down that pencil or you're fired. Face it, the box is here to stay. Every facet of life has been affected by the computer, and things will never be the same. The animation world is no different.

Hey you! CG animator. Yeah, we're talking to you too! Things are changing for you as well. The steady flow of traditional animators into the computer-generated animation industry has created more demands on your position in this evolution. So listen up!

The Evolution of the Art Form

Animators find themselves in the midst of a momentous change in their industry. As in many other fields, the computer has made what is known as a disruptive impact on our art form. Think of the car and the horse, the cellular phone and the payphone, the CG feature and the 2D feature…. To illustrate how the evolution of the art form has transpired, let us contrast the traditional and computer-generated forms of animation. There are two fields of traditionally animated features—such as *The Lion King* and *Beauty and the Beast*, also referred to as 2D animation—and computer-generated animated features, such as *The Incredibles* and *Shrek*, which are often referred to as CG or 3D animation. The terms "2D" and "traditional animation," as well as "3D" and "CG animation," will be used interchangeably throughout this book to refer to the respective mediums. The introduction of the computer has changed an art form that had been, up until now, a pen and paper medium for upwards of 80 years. Three major shifts are responsible for the progression from pencil to mouse in feature animation. These shifts can be traced to changes in audience, technology, and storytelling.

1824

PERSISTENCE OF VISION: Peter Roget presented "The Persistence of Vision with Regard to Moving Objects" to the British Royal Society.

1832

PHENAKISTOSCOPE: Dr. Joseph Plateau and Dr. Simon Ritter constructed the phenakistoscope, which produced an illusion of movement by allowing a viewer to gaze at a rotating disk containing small windows, viewing a sequence of images that created an animated effect.

1872

PHOTOGRAPHIC ANIMALS IN MOTION: Eadweard Muybridge started his photographic gathering of animals in motion.

1

Aesthetic Appeal Changes

The first shift was fueled by the increased popularity of visual effects movies in the 1990s. Visual effects–driven movies brought audiences to their feet with higher levels of entertainment and reality than ever before. Movies such as *Independence Day*, *Twister*, *Titanic*, and *Men in Black* were bringing hundreds of thousands of people into the theater to see these new visual effects. We are not talking about story here, but sheer aesthetic appeal. This change in the audience's taste was just one of the contributors to traditional animation's demise. The audience began to view CG features as visually richer and more exciting based solely on the aesthetic they portrayed. Video games and music videos also had a hand in shaping this new interest in computer-generated eye candy, especially among young viewers. The sheer richness of 3D and its ability to move the camera around in this new world made traditional animation suddenly seem, quite literally, flat.

Broadening the Audience for Animation

The second factor involved broadening of the audience for feature animation. Before visual effects movies became popular, there was a great divide between content for a kid's movie and for mainstream movies. In the 1990s, both parents and kids went to see movies such as *Titanic*, *Men in Black*, and *Jurassic Park* in droves. Here there was content that appealed to audience members both young and old alike. What made these effects-driven films more appealing was the computer's ability to create photo-realistic creatures and effects that wowed audiences because of their unprecedented believability. In addition, these effects were seamlessly integrated into the films. The films had something for everyone.

Unappealing Storytelling in Traditional Animation

Finally, the third shift in the animation evolution resulted from what many see as traditional animation's changing approach to story. The box office returns in traditional features began to suffer in direct proportion to the rising popularity of visual effects movies. In turn, traditional studios tried to broaden their audience through more adult story themes, such as *Pocahontas*, *The Prince of Egypt*, and *The Quest for Camelot*. Instead of writing stories that would appeal to the kid in all of us, the new screenwriters created stories for adults and hoped kids would like them too. After *The Lion King* was released in 1994, makers of traditional features felt that in order to be a success, they had to follow suit and create features that were epic in scope. Every studio tried to follow *The Lion King* mold and make large-scale, epic musicals. Studios were chasing both visual effects dollars and *The Lion King* money. As animation became a profitable business, stories were overworked by myriad "creative executives" in their efforts to create a blockbuster. In turn, the traditional movies made after *The Lion King* found a smaller and smaller audience.

1889

KINETOSCOPE: Thomas Edison announced his creation of the kinetoscope, which projected a 50-foot length of film in approximately 13 seconds.

1892

THEATRE OPTIQUE: Emile Reynaud opened the Theatre Optique in the Musee Grevin. It displayed an animation of images painted on long strips of celluloid.

1906

FIRST ANIMATED FILM: J. Stuart Blackton made the first animated film, *Humorous Phases of Funny Faces.* To do so, he drew comical faces on a blackboard and filmed them.

THREE MAJOR SHIFTS THAT CAUSED THE ANIMATION EVOLUTION

The three major shifts causing the evolution of animation include:

◆ Changed aesthetic of audience by visual effects–driven movies

◆ Broadening of the audience for CG through visual effects–driven movies

◆ Poor stories in traditional feature animated films

The Importance of History and Trends in Animation

Trends and history reveal how evolution of an art form occurs. Paying close attention to the trends and growth of any field helps predict the future of that industry. It is important to recognize trends in filmmaking, storytelling, and technology for an animator to increase his or her chances of continued employment. This book will point out many trends from the past and provide a blueprint of the future. By observing and learning about these developments, we remain educated about the technology and the audience.

The art of classical film animation has been ever-evolving since its early days. Artists and the studios at which they work have strived to raise the bar visually through storytelling since the first crude attempts at putting moving images on the screen. And no, we are not talking about *He-Man and the Masters of the Universe* here. We are talking about classical animation and its evolution into computer-generated feature films—think *Steamboat Willie* and *The Incredibles*.

With improvements in animation came demands for richer backgrounds, more complex camera moves, and an ever-increasing level of believability all around. This increasing need for more impressive visuals also pushed the budgets of these pictures higher and higher. Walt Disney paved the way for most animated features in the beginning by always striving to find new ways to push the technology and budgets in order to make a richer and more appealing animated film. With rising costs came the inevitable call to streamline production and establish more economical ways in which to get the message to the screen. Most of the other studios at this time focused on how to make their films as inexpensively as they could and still garner some of the success Walt Disney was having. Recounting every technological advance in the art of animation in this chapter would be boring. (However, we do provide an interesting 2D/CG chronological timeline of events and advancements in the footer of this book that might prove very enlightening as you read this text.) Instead, we will introduce the shifts and trends in animation that pushed us into the digital age.

1910

FIRST PAPER CUTOUT ANIMATION: Emile Cohl made *En Route*, the first paper cutout animation. This technique saved time because the animator repositioned the paper instead of redrawing each new sketch.

1911

LITTLE NEMO ANIMATION: Winsor McCay produced an animation sequence using his comic strip character, Little Nemo.

1914

HAND-DRAWN *GERTIE, THE TRAINED DINOSAUR*: Winsor McCay produced a cartoon called *Gertie, The Trained Dinosaur*, which amazingly consisted of 10,000 drawings.

Digital Artistry Begins

Digital tools have fundamentally changed an art that has been, for the greater part of its existence, a pencil and paper medium. Think about that for a second. Every animated feature film from the early 1900s to the late 1980s was a traditionally hand-drawn or stop-motion animated film. The tools used to make these films did not change significantly in almost 80 years.

To illustrate this more clearly, we begin with some CG history. In the mid '70s, incredible leaps in computer technology began to take place. New 3D software began to emerge. In 1980, IBM licensed DOS from Microsoft, marking the beginning of computers available to the masses. In 1983, the Macintosh followed. Computer Graphic Imaging (CGI) was in its infancy, and there were but a handful of companies creating images for film and television. Primarily there was New York Institute of Technology (NYIT); Magi Synthavision in Elmsford, New York; Information International Inc. (III) in Los Angeles; and Digital Effects (DE) in New York City. In 1981, Disney contracted III, MAGI, DE, and Robert Abel & Associates to create computer graphics for the movie *Tron*.[1]

The 1980s brought about events that moved technology forward, but it also brought events that would have lasting consequences for feature animated films. In the 1980s, Hanna-Barbera (the largest producer of animation in the U.S. at that time) began using computers in their animation process.[2] In the 1970s, Marc Levoy developed an early computer-assisted cartoon animation system, which was used by Hanna-Barbera

Productions to produce *The Flintstones*, *Scooby-Doo*, and other shows.[4] The traditional animation skills of drawing and inking began to give way to digital manipulation to produce new forms of animation.

As Hanna-Barbera explored ways to make animation faster, the 1980s also marked a trying time for Disney Studios. Disney had made a name for itself in feature animation by 1980, but was also experiencing a 10-year slump. Roy Disney resigned as an executive in 1977 due to disagreements with his colleagues' decisions at the time, but he retained a seat on the board of directors for several years. His resignation from the board in 1984 occurred in the midst of a corporate takeover battle by CEO Ronald William Miller (married to Walt's daughter, Diane Marie Disney) and prevented the hostile takeover by installing Michael Eisner and Frank Wells to run the business. Roy soon returned to the company as vice-chairman of the board of directors and head of the animation department. During this corporate shuffling, Disney Studios considered abandoning the production of feature-length animated films at the initial advice of Eisner, but Roy Disney convinced him that he could make animation profitable again.

1915

ROTOSCOPING INTRODUCED:
Max Fleischer and Dave Fleischer patented the roto-scope process.

1916

MORE PATENTS FROM BRAY:
Bray established a patent monopoly for the animation process and tried to enforce the patents by requiring all animation studios using his patented process to buy a license and pay a fee.

1919

BRAY AND FLEISCHER UNITE: Using the rotoscope test they created in 1915, the Fleischer brothers secured a contract with the John R. Bray Studios in 1919 to produce their series, *Out of the Inkwell*.

DISNEY ALMOST ABANDONS FEATURE PRODUCTION

"[Roy Disney] resigned from the board in 1984 to spearhead an effort to prevent a corporate takeover; he was later reinstated. He was instrumental in bringing Michael Eisner and Frank Wells to run the company, taking over from Ron Miller, Walt Disney's son-in-law. Roy Disney became chairman of Walt Disney Animation in 1984." Roy fought to keep his Uncle Walt's dream alive and keep Disney Features producing animation at a time when many wanted to sell the then unprofitable division off.[5]

Times Are Changing: 1981–1994

The years between 1981 and 1994 are considered the second Golden Age of Animation. Disney's spectacular box office success started with *The Little Mermaid* and ended with *The Lion King*. In 1981, Walt Disney's *The Fox and the Hound* premiered. The film was the last work of the Frank Thomas, Ollie Johnston, and Woolie Reitherman, three of the Disney's famous Nine Old Men.[6]

THE NINE OLD MEN

Walt Disney named his key animators in the early days of the studio the "Nine Old Men," coined after President Franklin D. Roosevelt's nickname for his Supreme Court. The original Nine Old Men were Les Clark, Marc Davis, Ollie Johnston, Milt Kahl, Ward Kimball, Eric Larsen, John Lounsbery, Wolfgang "Woolie" Reitherman, and Frank Thomas.

1920

WALT AND UB ENTER ANIMATION: 19-year-old Walter Disney started working in animation at the Kansas City Slide Company, with his friend Ub Iwerks.

1920

FELIX THE CAT MERCHANDISING: *Felix the Cat* started as the *Feline Follies* from Pat Sullivan's studio. Otto Messmer created Felix and also wrote the stories and directed, producing one film every two weeks.

1921

KOKO AND FLEISCHER STUDIOS: The *Out of the Inkwell* films made at Bray Studios became very successful and were centered on Max Fleischer as the creative cartoonist who would always have to keep Koko the Clown in check. In 1921, Fleischer Studios was born because of Koko's success.

While CG animation was in its infancy, traditional animation was experiencing the end of an age with the retirement of the Nine Old Men and the beginning of a new age. It is at this point in time that we see the introduction of young artists, such as Don Bluth, Glen Keane, Bill Kroyer, John Lasseter, Brad Bird, and Tim Burton. The second Golden Age of traditional animation did not really begin until the late 1980s. However, *The Fox and the Hound* and the 1982 film, *The Secret of NIMH*, really got the ball rolling. *The Black Cauldron* nearly stopped the ball in its tracks. As we mentioned earlier, Walt Disney Studios was going through serious reorganization efforts at this time and almost abandoned feature animation completely. When you view the *The Black Cauldron*, the reason why becomes painfully obvious. *The Black Cauldron* was an animated feature released by Disney in 1985. It was supposed to revitalize Disney's waning animated division, "which had produced only one significant motion picture, *The Fox and the Hound*, since 1977's *The Rescuers*." *The Black Cauldron* represented a noteworthy departure from previous Disney features because it was presented in 70mm, it used computer animation to augment the hand-drawn images, it did not feature any musical scenes, and it was rated PG. Despite all of this, or maybe because of it, *The Black Cauldron* was a box office disaster. No one went to see it. The film was out of theaters in several weeks, and its "financial ledger was smeared with red ink."[7]

Whether you can blame the failure of *The Black Cauldron* on unappealing characters or confusing storyline is inconsequential. The film bombed. Thankfully, Disney managed to regroup for the future, but not before losing one of its top talents, Don Bluth. Bluth, unhappy with what he felt was a lack of respect for the art at Disney, left and took a group of experienced animators to start a new studio. Bluth Studios was one of the first production houses to compete with Disney for a piece of the feature animation pie. Bluth's first movie, *The Secret of NIMH*, was pivotal because its success marked the very early beginnings of the second Golden Age. This second Golden Age of animation started a renewed interest in traditional features. As traditional studios went through restructuring in the '80s, January 20, 1984, brought the first computer-animated character—Sexy Robot—for a 30-second commercial ("Brilliance") created by the Robert Abel & Associates Studio that debuted at the Super Bowl. Randy Roberts directed the spot and Con Pederson was the technical director; together, they created a chrome female robotic character that was visually stunning. The effect this work had on the film community cannot be overstated.[8]

Roger Rabbit Pushes 2D and CG Forward

Moving through the 1980s, visual effects gained momentum with *E.T. the Extra-Terrestrial* and the *Star Wars* first trilogy film franchise. 2D movies fell into a slump until a crazy rabbit came into the picture. *Who Framed Roger Rabbit* was the channel for 2D, CG, and visual effects to push the envelope in animation. By combining live action and 2D characters convincingly, *Roger Rabbit* busted that envelope wide open. *Roger Rabbit* was rarity for traditionally animated films in the 1980s because it was an original animated film that appealed to both children and adults and was a mainstream hit in the United States. Disney said we owe our history to a little mouse, but maybe we should also give the crazy rabbit some credit as well.

After the release and success of *Who Framed Roger Rabbit*, the 1990s exploded with a stream of hugely successful animated films. This new time for traditional animation brought the movies *The Little Mermaid*, which made $84 million; *Beauty and the Beast*, which made $145 million; *Aladdin*, which made $217 million; and finally *The Lion King*, which made $317 million domestically. Studio executives got whiplash watching these numbers climb. The increasing figures made traditional animators' heads spin and their bank accounts soar with the highest salaries ever. In 1994, Jeffery Katzenberg left Disney, unbeknownst to him at the end of this Golden Age of traditional animation, and started DreamWorks Animation, hoping to get a piece of the pie for himself. Fox hired Don Bluth to head up their feature animation division as well at this time. But storm clouds were brewing.

The first little cloud on the horizon for traditional animation was a successful film called *Tin Toy*, which became the first computer-animated short film to win an Academy Award. The *Tin Toy* short created by John Lasseter and Pixar marked a pivotal point for CG animation. *Tin Toy* proved that a 100-percent computer-generated short film could be produced and contain the same quality and standards for story and characters as a traditionally animated short. It also meant that CG could actually be pro-duced in a longer format than the short sequences in earlier films, and in the same realm as traditional animation. In addition, *Who Framed Roger Rabbit* grossed more than $329 mil-lion worldwide in 1988[10] and proved that traditional animation, at least when combined with live action, was not limited to a children's audience.

1928

OSWALD THE LUCKY RABBIT LEAVES DISNEY:
Oswald was first introduced in 1927. In the spring of 1928, Disney asked for an increase in the budget of the successful cartoon and was instead told he had to take a 20% budget cut, so he quit. Carl Laemmle of Universal opted to have the Oswald cartoons pro-duced on the Universal lot and selected Walter Lantz to produce the new series of shorts.

1929

SOUND AND IMAGE ADVANCES: The *Skeleton Dance* was the first *Silly Symphony*, in which the use of prerecorded music led to a tight synchronization of sound and picture, and set the standard in animation for using prerecorded sound.

Conrad Vernon shares his perspective regarding the hard road for 2D because of the popularity of CG:

> The future of 2D animation will be strictly independent, like *The Triplets of Belleville*. God bless the person that comes around with a great 2D film and does it independently and gets some money-person with a little bit of vision and trust in his talent to give him the money to do it. That 2D animator then works his ass off and the movie has to become huge. You are fighting Goliath with this thing.

Conrad has a point. As the CG medium becomes more of an identifiable art, 2D could be lost forever. But how could this happen after *The Lion King* made so much money? As of the writing of this book, DreamWorks and Disney, the two largest animation studios in Hollywood, have shut down their traditional animation units for theatrical release, no longer accept traditional portfolios, and have dedicated all of their efforts to making CG films. In the 10-year period between the unbelievable success of *The Lion King* and the
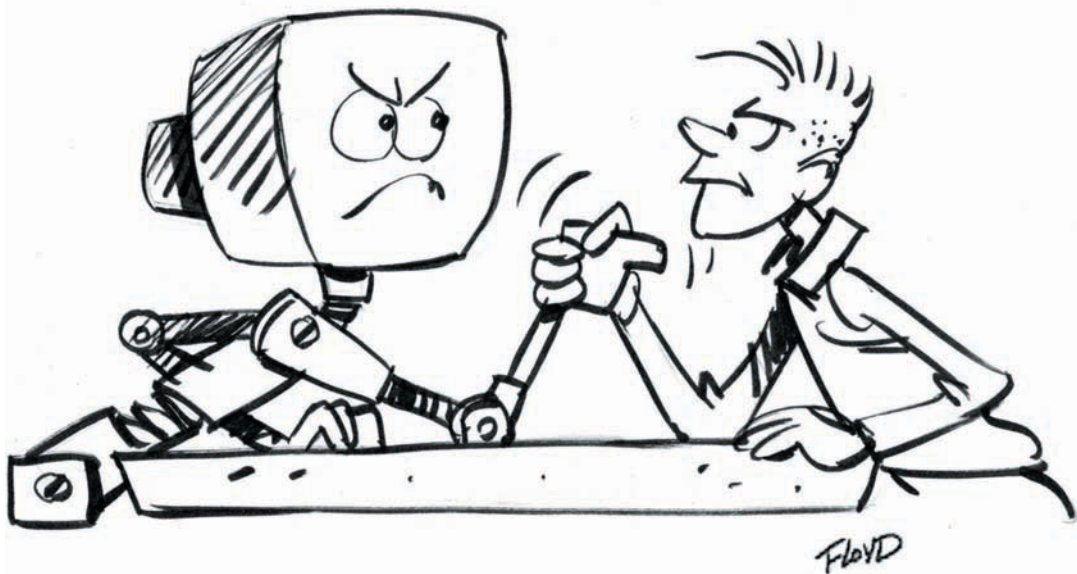
CG and 2D arm-wrestle for the audience, while visual effects–driven movies make more money than ever. Sketch by Floyd Norman.

1931

MGM'S FIRST SOUND CARTOON: Ub Iwerks' *Flip the Frog* was MGM's first sound cartoon character. Under the advice of MGM, Flip the Frog changed to become less froglike and more human-looking. By the time the series ended, Flip the Frog looked more like a boy than a frog.

1931

MERRIE MELODIES INTRODUCED: Warner Bros. introduced *Merrie Melodies* as one-shot shorts.

1931

DISNEY ART SCHOOL: Disney starts a studio school under the direction of Don Graham, a former engineering student at Stanford.

As the art of animation continues to evolve, we cannot forget the foundation and principles of animation necessary to create great performances. Yes, the computer has a very remote nature not as tangible as a pencil, but it's here to stay so let's try to find a way to unite both the technical and artistic sides of the CG animation world. People in animation now say, "Let's make a new, more improved digital artist."

A New Digital Artist Is Born

In the late 1990s, CG continued to develop the tools to be easier for non-programmers to use. The years encompassing the last decade of the twentieth century are particularly meaningful because they represent the largest single change in the art of animation since its earliest days. Never before has a technology made a more radical impact on the way we animate. More selective hiring criteria for digital artists began in these years at visual-effects and CG studios. The industry had come full circle. The foundation of classical animation, created by the past masters including Disney's Nine Old Men, was beginning to have an impact on computer-generated animation. Digital artists in the 1990s had to have a good knowledge of the traditional principles of animation as well as an understanding of the computer tools.

As 2D productions dwindled, traditional animators began to cross over into CG. However, in the early 1990s, artists willing to work on a computer with traditional animation skills were still very rare. Not enough traditional animators were willing to make the crossover to the computer at this time. Many 2D artists were fighting the computer. The demand for these traditional
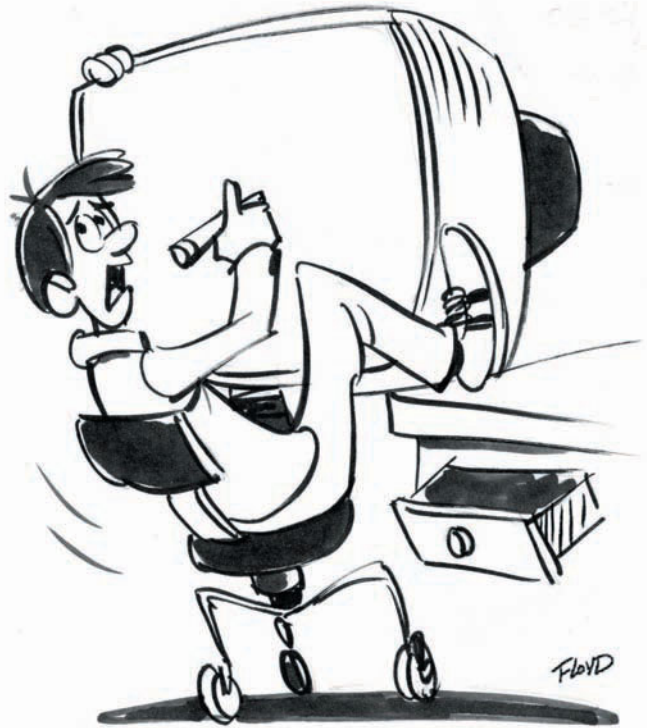
The digital animator is redefined. Sketch by Floyd Norman.

artists in CG was high, and the supply was low. As the traditional artists weighed the choice to cross over to the computer, CG artists trained as animators on the computer for years were frustrated with the idea that they might have to go back to school to learn traditional animation just to compete with the traditional artists making the leap. Ironically, at this time, CG animators were facing the same fears as 2D animators, thinking, "I spent years on a career I love, and now I might have to go back to school just to get a job!"

The introduction of more 2D animators in CG continued to push the boundaries of what computer animation was capable of and what animators demanded of the tools. Animation artists began to force programmers to develop tools that would enable them to realize their vision outside of what most thought a computer could do. Everything moved to a higher level because traditional animation stars began to enter CG. By now, the public and the industry had much higher expectations. Even people who did not work in the industry had their opinions. Exposure to quality changes your taste. Anyone who has experienced a fine wine or Egyptian 900 thread–count sheets has experienced this, and the same applies to animation. Conrad Vernon explains how even his brother's untrained eye was able to identify bad animation:

Understanding the basics and fundamentals of the profession is now equally as important as the software. By 2001, the 2D boom was in the past, and the success of *Shrek* was central to changing the face of animation. *Shrek*, *Toy Story,* and other CG films proved that grounding yourself equally in the arts and in computer sciences was the key to staying employed in the 1990s. Nik Ranieri tells a story of a friend who went to work at Pixar:

> I remember one of my friends, a story guy, who was about to go up to Pixar and live and work. He said to me, "Why don't you come up?" I said, "I don't know anything about the computer and all that." He said, "You don't have to know anything. They don't want people who know the computer. You can learn that. It's easy to learn. The animation aspect, that's the hard part." This was in the mid-1990s, when computer animation was still young.

generated short film could be produced and contain the same quality and standards for story and characters as a traditionally animated short. It also meant that CG could actually be pro-duced in a longer format than the short sequences in earlier films, and in the same realm as traditional animation. In addi-tion, *Who Framed Roger Rabbit* grossed more than $329 mil-lion worldwide in 1988[10] and proved that traditional animation, at least when combined with live action, was not limited to a children's audience.

1935

TERMITE TERRACE: Tex Avery joins the Leon Schlesinger/Warner Bros. studio. Bob Clampett joined Tex Avery's unit the same year, and the two soon developed an irreverent style of animation that would set Warner Bros. apart. They worked apart from the other animators in a termite-infested building dubbed Termite Terrace, a name used by fans and historians to describe the entire studio.

1935

PORKY PIG DEBUTS: *I Haven't Got a Hat,* a Warner Bros. cartoon short, introduced Beans the Cat, Little Kitty, Porky Pig, Oliver Owl, Ham, and Ex. Porky stole the show with his mixed-up attempt to recite "The Ride of Paul Revere."

Age had peaked. As the first of its kind, the CG release *Toy Story* cost $30 million to make[14] and made $358 million worldwide after its release in 1995.[15] Before this film, the impression was that CG animation was too expensive to make a profit.

Box-office profits from 1997 to 1999 show the rise of CG and the fall of 2D specifically. The years 1997–1999 in Table 1.2 provide a snapshot of the greatest leaps in visual effects and CG movies and how they changed the audience for animated films. The 2D and 3D production index in Appendix B will take you on a more thorough journey of traditional, CG, and visual-effects movies made since 1994 to illustrate this point in depth. Table 1.2 identifies the reasons for this change in animation from both a financial and a social standpoint. Studios had been chasing after profits like those achieved by *The Lion King* for years. At the same time, the audience had changed. The audience for animated films was educated by the increased production of heavy visual-effects movies. 2D did not look expensive anymore, and 2D studios began to respond by changing how they marketed their product. This brings us back to the importance of story, and why a studio like Pixar was so successful.

In the period from 1997 to 1999, nine traditional films made half the profits that nine visual-effects movies made. Although there were not as many productions made, CG-animated movies were holding their own against traditionally animated films during these years, making as much money or more. These numbers were not lost on the studios. Once *Shrek 2* was released in 2004, CG movie productions were making more money than some live-action blockbusters. The studios began to theorize that the answer was the medium and not the story. To quote Marshall McLuhan, "It's the medium, not the message." Tom Sito uses Fox as an example to show how studios can start thinking the medium is what is bringing the audience:

> Look at the experience at Fox. They spent 10 years bankrolling Don Bluth movies, culminating in one flop after another. *Titan AE* was really expensive, and nobody saw it. The first 3D film Fox supported after Bluth was *Ice Age*, and that movie made more money than *A Beautiful Mind*, the Best Picture winner of the year! The second movie—*Robots*—BOOM! It's another hit. Fox must think that CG is the answer then, instead of story.

1936

OSCAR FOR *THE OLD MILL* (DISNEY): Disney wins a Best Short Subject: Cartoons Academy Award for *The Old Mill*.

1937

SNOW WHITE AND THE SEVEN DWARFS RELEASED: At the 11th Academy Awards, Walt Disney was recognized with a special award for *Snow White* as a significant screen innovation that has charmed millions and pioneered a great new entertainment field for the motion picture cartoon.

1937

DAFFY DUCK APPEARS: *Porky's Duck Hunt* is an animated short film starring Porky Pig; it is notable for being the first appearance of Daffy Duck.

The Best of Both Worlds

Initial bewilderment and punishing hand cramps slowly gave way to the realization that rather than giving up the craft 2D animators had struggled so long to perfect, all of the principles of traditional animation also applied directly to animation on a computer. Troy Saliba tells us of his experience transitioning from 2D to CG:

> When I was introduced to CG, I actually posed my animation out first on paper without doing any in-betweens. I just drew all my keys and my breakdowns. I said, "That's the scene." I still thank the guy who sat beside me through the whole CG process because it wasn't pretty. I created the same poses I had drawn on the computer and I used step curves. I Playblasted it, and I was happy to see that it worked. I could see the pose test there. I then (in another painful process) went in and did what I call the in-between part, working with the graph edi-tor, which was very mysterious and scary to me. I was happy to find that the main principles as far as establishing poses, working on my timing with the blocking, and all that stuff just carried through. By the time I got to the graph editor, it was just a formality at that point. Before I worked through this process, I was really frightened. Once I did it, I said to myself, "Okay, there is obviously a lot of technical stuff I need to learn here, but it's a mountain I can climb now." It doesn't seem so scary and abstract.

In 2003, Disney made the decision to abandon the hand-drawn traditional approach for the new, popular CG medium. In April of that year, Glen Keane, a 31-year veteran who created the beast for *Beauty and the Beast* and Ariel for *The Little Mermaid*, gave a seminar called "The Best of Both Worlds" to a meeting of 50 animators. The subject of the seminar was a discussion of the pros and cons of each art form. Keane says he was confronted by Kevin Geiger, a computer animation supervisor, who said, "If you can do all this cool stuff that you are talking about—that you want to see in animation—but you have to give up the pencil to do it, are you in?" Keane says he hesitated, but answered, "I'm in." In this situation, did he really have a choice?[17]

1939

DISNEY MOVES THEIR STUDIO:
The new buildings in Burbank were designed around the animation process, with the large animation building in the center of the campus and adjacent buildings for related departments.

1940

OSCAR FOR *THE MILKY WAY* (MGM): *The Milky Way* won the Best Short Subject: Cartoons Academy Award.

1940

***PINOCCHIO* 2ND DISNEY FEATURE:** Based on the book *Pinocchio* by Carlo Collodi, the film was made in response to the enormous success of *Snow White and the Seven Dwarfs*.