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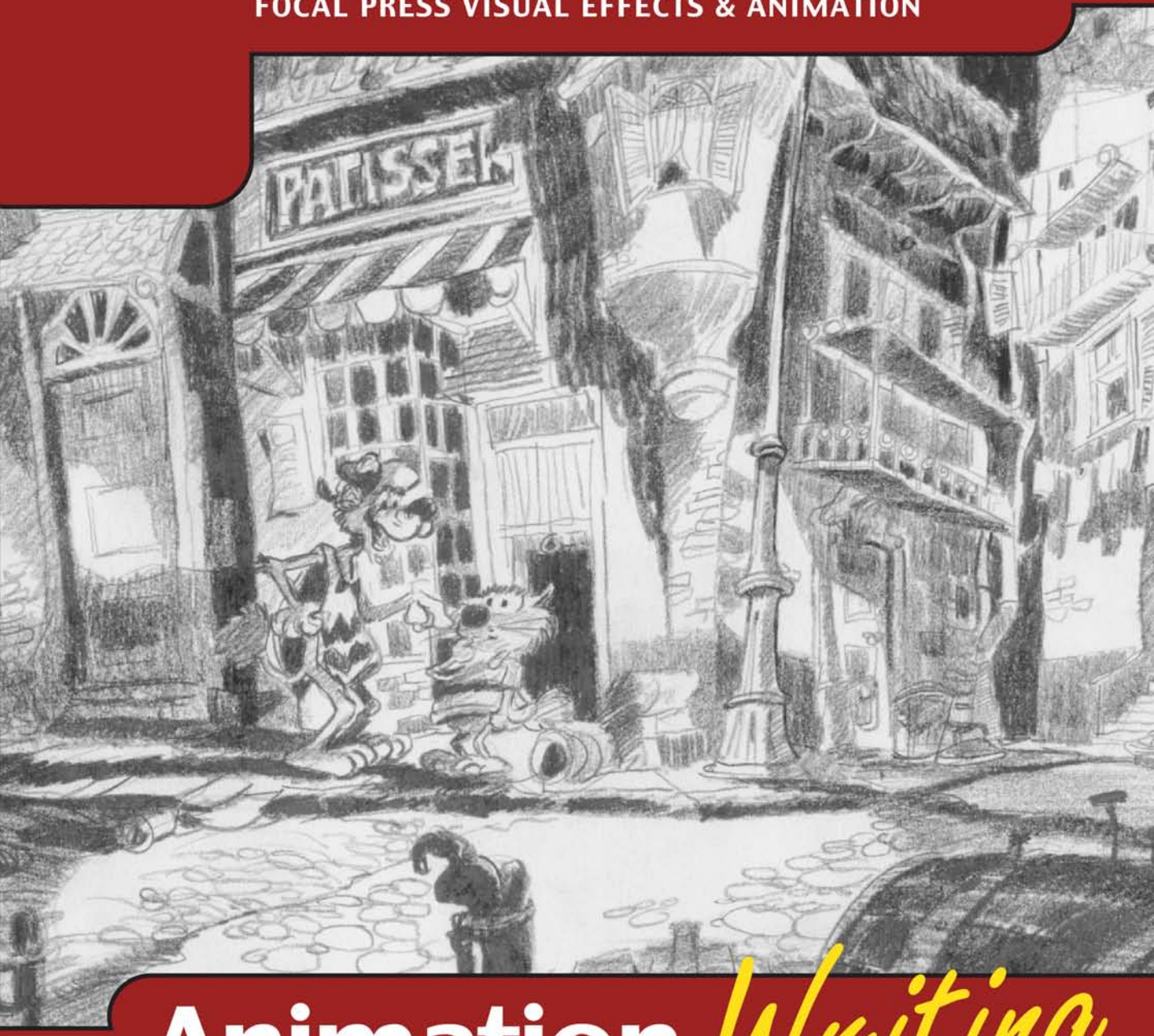

Animation Writing and Development

From Script Development to Pitch

JEAN ANN WRIGHT

Animation Writing and Development

FOCAL PRESS VISUAL EFFECTS AND ANIMATION

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Contents

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I first learned animation writing and development at Hanna-Barbera Productions, where, through a company training program, I was hired to work as an artist. My training was supervised by Harry Love, and the writing program was led originally by Ray Parker, later by Bryce Malek, and then Mark Young. Most of the Hanna-Barbera writing and development staff volunteered an evening to teach. Joe Barbera always took time out of his busy schedule to speak. Professionals like Alex Lovy, Marty Murphy, Art Scott, Bob Singer, Iwao Takamoto, and Tom Yakutis taught me storyboard techniques.

Since then I've attended seminars and classes from a host of Hollywood gurus and read many books. I'd especially like to thank Linda Seger. Currently, I attend Storyboard, a workshop on live-action feature scripts led by Hollywood screenwriting teachers. Before I worked at Hanna-Barbera I attended many children's book writing workshops. This book is the result of all of these influences.

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Credits:

Alvaro A. Arce (Chile)

Poncho Puma and His Gang © 1998 Alvaro A. Arce

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Introduction and User's Manual

This material originally was developed to teach animation writing and development to members of Women In Animation in Los Angeles, California. The members of that organization are professional men and women who work in many aspects of the animation industry and students who look forward to working in the industry in the future. Since I started teaching, the material has been expanded, and I've lectured at a number of schools.

The chapters are organized so writers, artists, or students who wish to develop their own animation material can start by learning some animation basics and then dig right in and develop their own animation characters. Memorable characters are key in animation storytelling, but it is not necessary to read the chapters in the order in which they appear.

When I teach, I like to assign a project that can be completed and later pitched as a television series, film, or game. First I ask my students to develop three to eight original characters. If they're artists, they may want to design the characters as well. Then they develop the basic idea for their own television series, short film, feature, or game. For a series they'll create a bible; for a film they'll create a presentation to pitch their project. Next they'll write a premise or treatment, followed by an outline, and then a short script. Game developers write a concept proposal and walkthrough instead. They have time to work on this during each class, but most of this is homework. I provide feedback each step of the way.

For those teachers who prefer to work in a different way, there are exercises at the end of most chapters. Some of these can be done in the classroom, but others are better homework assignments. Feel free to pick and choose the exercises that might best fit your class. This is a menu of suggestions; you won't want to use all of them.

I've tried to make the book useful for everyone who wants to learn animation writing or development, whether they are in a classroom setting or on their own. And since animation production today is such an international industry, I've tried to make this book useful to animation professionals and future professionals all over the world. Much of this book teaches the accepted methods that are used to tell animation stories and all stories in Hollywood. When you see Hollywood films, television, and games enjoyed all over the world, it's a good indication that these methods work. All rules, however, are meant to be broken. If you can develop a story in a way that is fresh, unique, funny, or moving, but does not

follow the rules, by all means, try it your way! The most important ingredient in good storytelling is a writer who really cares about the story, the characters, and the audience, and succeeds in telling that story in the most effective way.

It's important that animation professionals learn *story*. Most animation schools teach artists who would prefer to draw rather than write. But the lack of a solid writing background is obvious throughout the industry. Whether professionals develop their stories as story development drawings, storyboards, or scripts, professional storytelling skills are all-important!

CHAPTER 1

Introduction to Animation

What Is Animation?

The word *animate* comes from the Latin verb *animare*, meaning "to make alive or to fill with breath." We can take our most childlike dreams or the wackiest worlds we can imagine and bring them to life. In animation we can completely restructure reality. We take drawings, clay, puppets, or forms on a computer screen, and we make them seem so real that we want to believe they're alive. Pure fantasy seems at home in animation, but for animation to work, the fantasy world must be so true to itself with its own unbroken rules that we are willing to believe it.

Even more than most film, animation is visual. While you're writing, try to keep a movie running inside your head. Visualize what you're writing. Keep those characters squashing and stretching, running in the air, morphing into monsters at the drop of an anvil! Make the very basis of your idea visual. Tacking visuals onto an idea that isn't visual won't work. Use visual humor—sight **gags**. Watch the old silent comedies, especially those with Charlie Chaplin and Laurel and Hardy. Watch The Three Stooges. Many cartoon writers are also artists, and they begin their thinking by drawing or doodling. The best animation is action, not talking heads. Even though Hanna-Barbera was known for its **limited animation**, Joe Barbera used to tell his artists that if he saw six frames of **storyboard** and the characters were still talking, the staff was in trouble. Start the story with action. Animation must be visual!

Time and space are important elements of animation. The laws of physics don't apply. A character is squashed flat, and two seconds later he's as good as new again. He can morph into someone else and do things that a real person couldn't possibly do. Motion jokes are great! Wile E. Coyote hangs in midair. In animation the audience accepts data quickly. Viewers can register information in just a few **frames**. **Timing** is very important in animation, just as it is in comedy. The pace of gags is quick. Normally, there are more pages in an animation script than there are in a comparable, live-action script, partially because everything moves so fast.

Animation uses extremes—everything is exaggerated. Comedy is taken to its limits. Jokes that seem impossible in live-action are best, although with today's special effects, there is little that can be done in animation that cannot be done in live-action film as well.

The Production Process

The production process is slightly different at different studios around the world. Even at a specific animation studio, each producer and director has his or her own preferences. Children's cartoons are produced differently from prime-time animation because of the huge variation in budget. Television shows are not produced the same way as feature films. Direct-to-videos are something of a hybrid of the two. Independent films are made differently from films made at a large corporation. Shorts for the Internet may be completed by one person on a home computer, and games are something else altogether; 2D animation is produced differently from 3D; each country has its own twist on the process. However, because of the demands of the medium, there *are* similarities, and we can generalize. It's important for writers to understand how animation is produced so they can write animation that is practical and actually works. Therefore, the production process follows in a general way.

The Script

Usually animation begins with a script. If there is no script, then there is at least some kind of idea in written form—an **outline** or **treatment**. In television a one-page written **premise** is usually submitted for each episode. When a premise is approved, it's expanded into an outline, and the outline is then expanded into a full script. Some feature films and some of the shorter television cartoons may have no detailed script. Instead, creation takes place primarily during the storyboard process. Writers in the United States receive pay for their outlines and scripts, but premises are submitted on spec in hopes of getting an assignment. Each television series has a **story editor** who is in charge of this process. The story editor and the writers he hires may be freelancers rather than staff members. The show's producers or directors in turn hire the story editor.

Producers and directors have approval rights on the finished script. *Producer* and *director* are terms with no precise and standard meaning in the United States, and they can be interchangeable or slightly different from studio to studio. Independent producers may deal more with financing and budgets, but producers at the major animation studios may be more directly involved with production. Higher executives at the production company often have script approval rights. Programming executives also have approval rights, as do network censors and any licensing or toy manufacturers that may be involved in the show. If this is a feature, financiers may have approval rights as well.

Recording

About the time the script is finalized, the project is cast. The actors may be given a separate actor's script for recording. Sometimes they get character designs or a storyboard if they are ready in time. A voice director will probably direct. If this is a prime-time television project, then the director may hold a **table read** first, but usually there is no advanced rehearsal. At some studios the writer is welcome to attend the recording session. That is far from standard practice, however, and writers who do attend probably will have little or no input on the recording. Some studios still prefer to record all the actors at once for a television project,

as if they were doing a radio play. However, each actor may be recorded separately. This is especially likely if the project is an animated feature. Individual recording sessions make it easier to schedule the actors, work with each actor, move the process along, and fine-tune the timing when it's edited. Recording the actors together allows for interaction that is impossible to get any other way. Executives with approval rights have to approve casting and the final voice recording.

The directors usually work with a composer, who may be brought in early for a feature. Hiring might not be done until later in the process if this is a television show, although some directors bring in a composer early for TV as well.

The Storyboard

Storyboard artists take the script and create the first visualization of the story. Often these boards are still a little rough. In television and direct-to-video projects each major action and major pose is drawn within a frame representing the television screen. The dialogue and action are listed underneath each frame. Usually, an **animatic** or video of these frames is scanned or filmed from the board when it's complete. This animatic, which includes any recorded sound, helps the director see the episode in the rough and helps in timing the cartoon. Executives must approve the final storyboard or animatic.

The storyboard process may take about a year for a feature. The script or treatment will undergo many changes as the visual development progresses. Artists sometimes work in groups on sequences, or a team of a writer and an artist may work together. The development team pitches sequences in meetings and receives feedback for changes. The director and other executives have final approval. Feature storyboard drawings are cleaned up and made into a flipbook. Finally the drawings are scanned or shot, the recorded and available sound is added, and the material is made into a story reel. Any necessary changes discovered during the making of the animatic or story reel are made on the storyboard. The building of the story reel is an ongoing process throughout production. Later **breakdowns**, then penciled animation, and finally completed animation will be substituted. This workbook of approved elements is usually scanned and available on staff computers and serves as an ongoing blueprint. For CGI features a 3D workbook shows characters in motion in space as well.

Slugging

The timing director sets the storyboard's final timing, and the board is slugged. This does not mean that somebody gets violent and belts it with a left hook! Slugging is a stage when the overall production is timed out, and scenes are allotted a specific amount of time, measured in feet and frames. In television this information is added to the storyboard before it's photocopied and handed out. An editor conforms the audiotape.

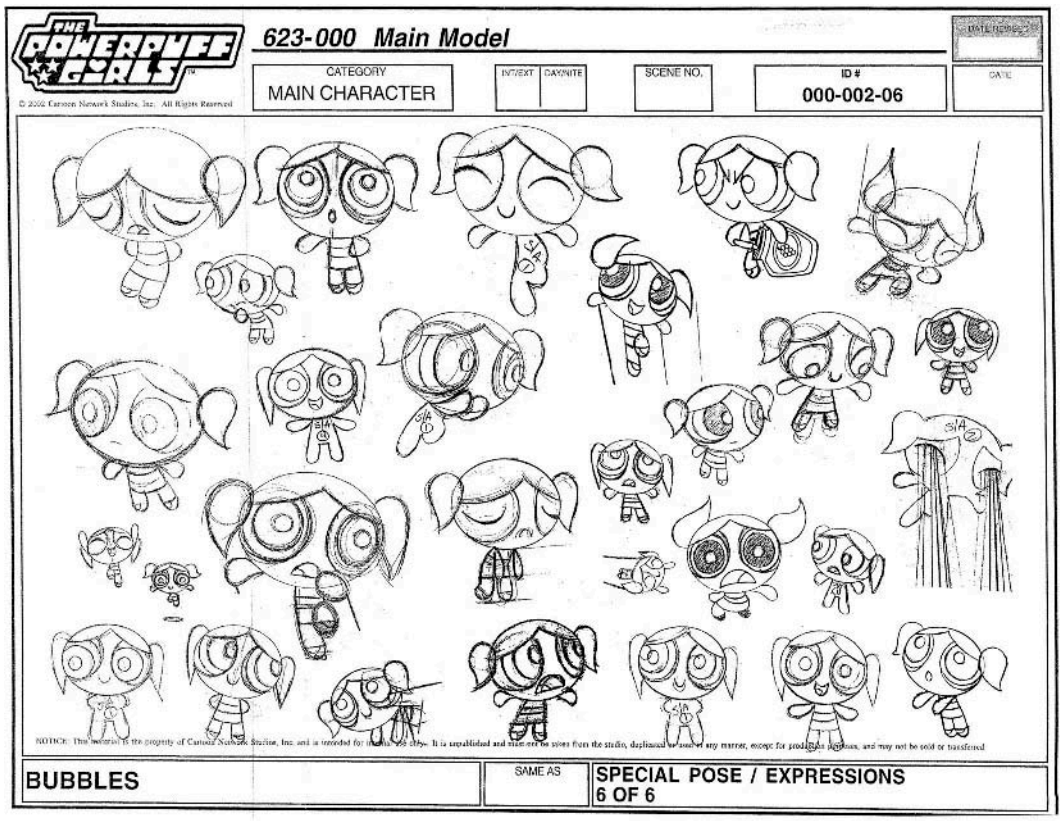
Character and Prop Design

After the script has been approved, a copy goes to the production designer or art director. If the project is a television series, then the major and ongoing characters have already been

designed and fine-tuned during development. The approved drawings, as seen from various angles, are compiled into the model sheets (see Figure 1.1). If the ongoing characters have a costume change in this TV episode or feature sequence, or new characters are needed, that must be considered. Each TV episode or feature sequence also requires props that have not been used before. Sometimes the same designers create new characters, costumes, and props; sometimes designers specialize and design either characters *or* props. New drawings are compiled into model sheets for each specific television episode. The drawings may be designed on paper or modeled in a computer. Approvals are required.

Background Design

The production designer or a background designer is responsible for all location designs. In television or direct-to-video layout, artists will design these line drawings (layouts) from the



(a)

Figure 1.1 Bubbles (a) and Buttercup (b) from *The Powerpuff Girls* show off their acting skills on these model sheets.
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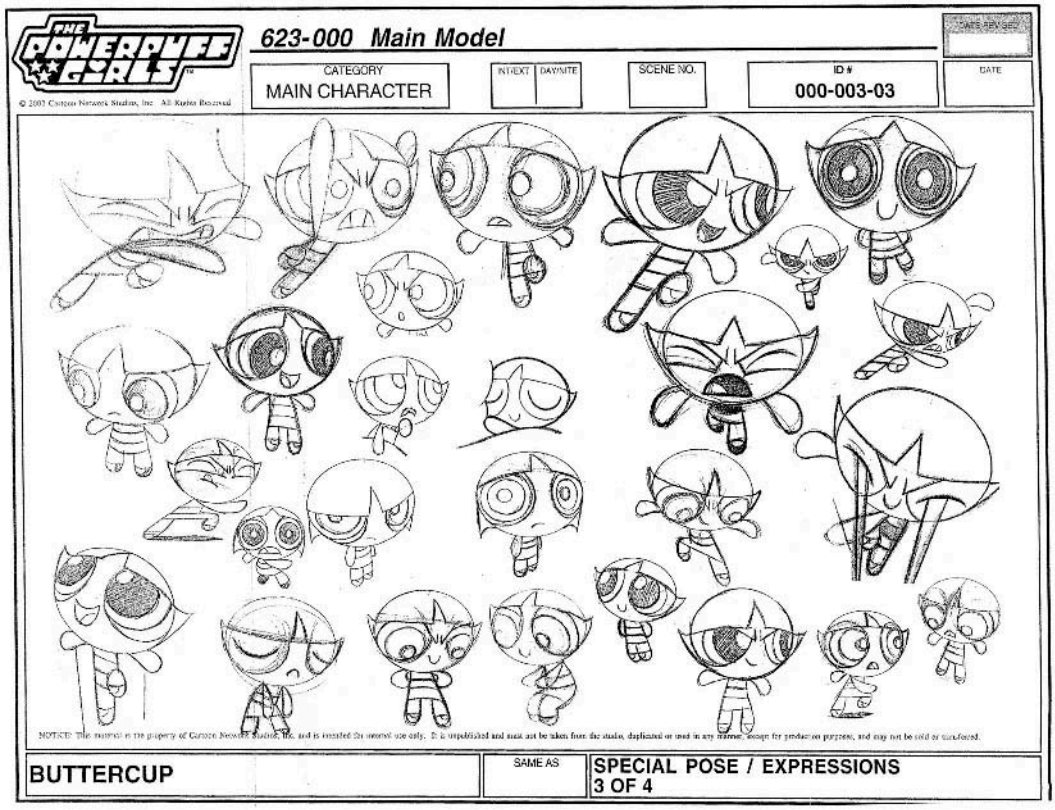

(b)

Figure 1.1 *Continued*

roughs done by the storyboard artist (see Figure 1.2). Then a background painter will paint a few key backgrounds (especially those for **establishing shots**) and ship them overseas to be matched by other painters painting additional backgrounds. Very little animation production is done in the United States due to the high costs. In feature production the visual development artists may be working on both story and design at once, making many concept drawings before the final designs are chosen and refined for actual production. Background artists usually paint in the traditional way, but some or all elements can be painted digitally. Digital backgrounds can be changed more easily. Major designs require approval.

Color

Color stylists, who are supervised by the art director, set the color palette for a show. It's important that they choose colors that not only look good together but that will make the characters stand out from the background. Different palettes may be needed for different lighting conditions, such as a wet look, shadowing, bright sunlight, and so on. If the project is CGI, texturing or surface color design is needed. Once again approvals are required.

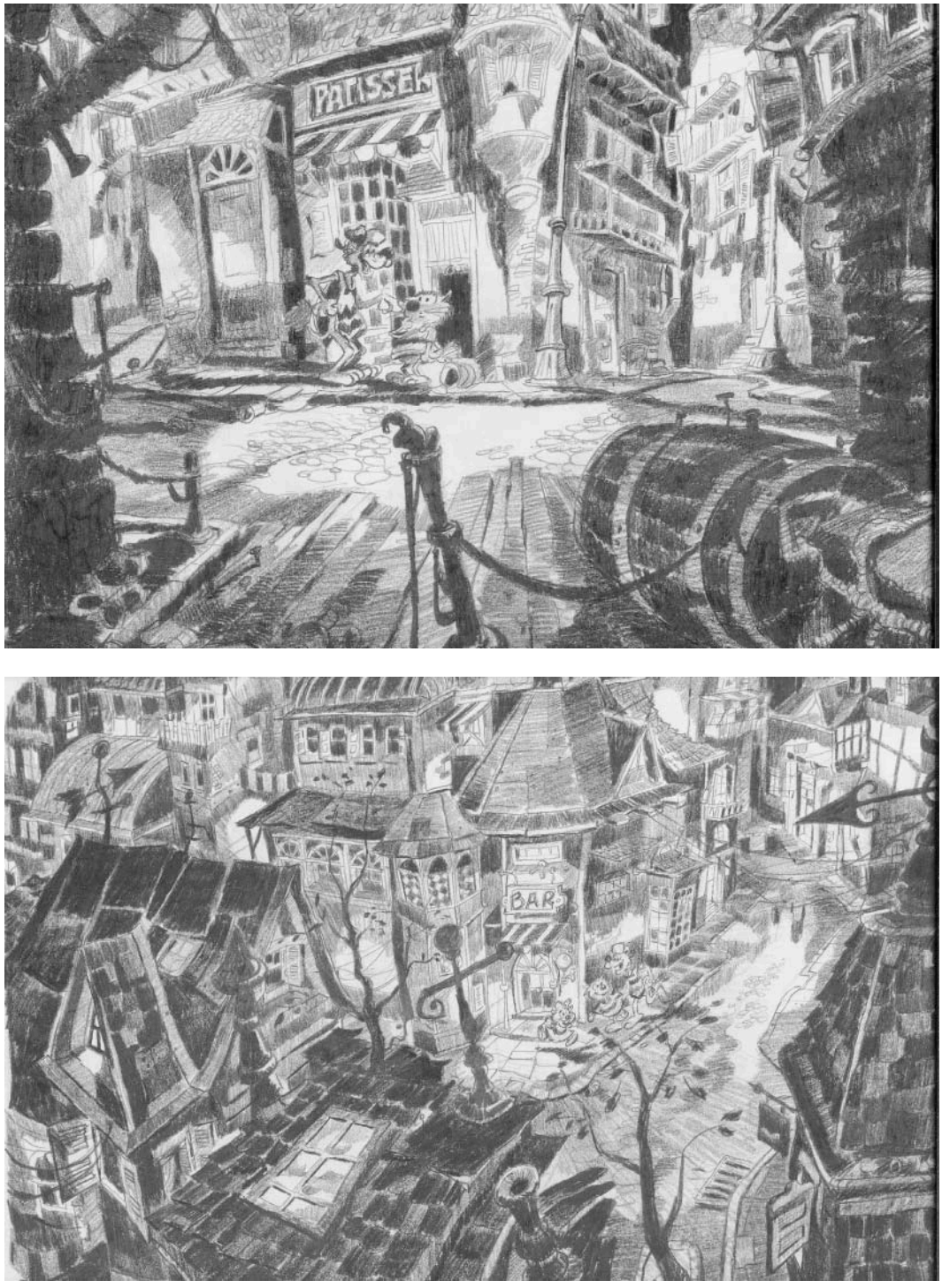

Figure 1.2 These drawings from *Poncho Puma and His Gang* are essentially background drawings with characters included for presentation and publicity purposes. Notice the use of perspective. *Poncho Puma and His Gang* © 1998 Alvaro A. Arce.

Layout

Layouts are detailed renderings of all the storyboard drawings and breakdowns of some of the action between those drawings. These include drawings for each background **underlay**, **overlay**, the start and stop drawings for action for each character, and visual effects. Layout artists further refine each shot, setting camera angles and movements, composition, staging, and lighting. Drawings are made to the proper size and drawn on model (drawn properly). Key layout drawings may be done before a production is shipped overseas, with the remainder done by overseas artists. Or layout may be skipped, basically, by doing detailed drawings at the storyboard stage. Later these can be blown up to the correct size, and elements separated and used as layouts.

Exposure Sheets

The director or sheet timer fills out exposure sheets (X-sheets), using the information found on the audio track. These sheets will be a template or blueprint for the production, frame by frame and layer by layer. The recorded dialogue information is written out frame by frame for the animator, and the basic action from the storyboard is written in as well. If music is important, the beats on the **click track** are listed.

Animation

The animator receives the dialogue track of his section of the story, a storyboard or workbook that has been timed out, the model sheets, copies of the layouts, and X-sheets. There are boxes on the X-sheets for the animator to fill in with the details, layer by layer, as the animation is being planned. Animation paper, as well as the paper used by the layout artists and background artists, has a series of holes for pegs so that it can be lined up correctly for a camera. For an animated feature, animation **pencil tests** may be made prior to principal animation to test the gags and the animation. In television and direct-to-video projects, key animators may animate the more important action before it is sent overseas for the major animation to be completed. Animators might be cast to animate certain characters, or they may be assigned certain sequences.

Clean-up artists or assistant animators clean up the rough animation poses drawn by the animator and sketch the key action in between. A breakdown artist or inbetweener may be responsible for the easier poses between those. Visual effects animators animate elements like fire, water, and props. For a feature production where drawings are animated on ones (rather than holding the poses for more than a single frame for a cheaper production), a single minute of film may take over 1,400 drawings. So you see how labor-intensive animation is!

Scene Planning

Scene planners break down each scene with all of its elements and check that the scenes are ready for scanning or shipping. A scene planner will set up all of the elements in the

computer or on a pegged animation disk and make sure that they will work correctly. These professionals have excellent technical knowledge. They check all math and verify that each scene and all the camera moves have been set up in the best way. They will also check that color effects are set up properly for the painters.

Shipping

A production coordinator assembles all the pre-production elements. The coordinator verifies that everything is accounted for, that all information is clear, and that everything is correct before shipping abroad.

Traditional Production

Once all the pre-production elements arrive overseas, the subcontractor finishes the work. Animators, their assistants, and inbetweeners finish the animation. Background painters complete the remainder of the backgrounds. All the paper or computer elements (X-sheets, animation, painted backgrounds) are checked by animation checkers to be sure they are complete and will work properly. Lines must be closed off for digital painting. The drawings are photocopied onto **cels** or scanned into the computer if they haven't been scanned already. Traditional painters receive **color models**, painted onto cels, and stacks of the photocopied cels. They paint each cel with water-based paints on the side that has no raised and photocopied lines. Digital painters recheck for lines that are not closed off and touch their computer screens to fill sections of each drawing with color from their palette. Final checkers check the work again.

If the artwork is digital, the final checker composites the work and makes sure it's ready for final output. For productions that are more traditional, the work is then shot frame by frame with an animation camera. Backgrounds are placed on a flat bed with pegs to hold them in place. Any underlays are placed on the bottom. The levels of cels are placed on top of the underlay one by one. Overlays are placed on top of that. Then the whole package is shot, replaced with the elements of another frame, and shot again until completion.

CGI Production

CGI productions are a merging of 2D animation and live action. Designs are usually created in 2D first, approved, and sent for **modeling** in 3D. Characters can be modeled on a computer—often from basic geometric shapes—and the parts fused, or sculptures can be **digitized** as a **wire-frame** model. **Rigging** adds a skeleton to the model. Animators then test movement possibilities. Modeling, rigging, and animation continue until all problems have been resolved. Texture and color are added with emphasis on correct lighting. Software programs also allow actors to be rigged with motion capture sensors, which convert the actor's movement to animation for a predesigned character.

Locations, sets, or environments are modeled as well. These will also be rough at first, or live-action backgrounds may be added.

A 3D workbook is created in low-resolution, with locations slowly refined. Characters are added to the locations and animation improved. Cinematography elements (camera position, angles, movements, lighting) are added and polished. Principal animation is done after the 3D workbook elements are approved. Refinements are made throughout the process. Once everything has been approved, the final animation focuses on subtleties. Lighting becomes the major focus after animation has been completed in each scene. Working with the technical directors, the effects animators then add visual effects. Along the line some **rendering** and **compositing** have been done to see how things are coming along. The full rendering and compositing of all the elements of a scene are not done until the end because fully developed scenes can take a long time to process. Rendered scenes are touched up, checked, and then rendered again for the final completed project.

Post-Production and Editing

The overseas studio returns the completed project. The director may require **retakes** from overseas or have a few minor changes made locally. Today overseas work can be monitored more closely over the Internet while it's being done so fewer changes will be required once the work is returned. After approval, the editors mix the voice track with **ADR**, sound effects (**Foley effects** or effects from a sound effects library), and music tracks (which may be original or also from a library). The tracks are then blended. The videotape is combined with the sound, the opening titles, and the credits. Transitions are added, and this editing is completed in an offline or online assembly. Sometimes a film is generated, and it must be color corrected. The directors, producers, and programming or financing executives view the completed work. Notes are given, changes are made, and retakes are done. Final approvals are given, and a release print is made. The completed project is now ready for delivery.

Stop-Motion Animation

Some animators prefer to work with puppets, using clay, a plastic material, or foam. These projects are more like live-action films. Characters must be made, sets built, and lighting rigged. Some people work with paper cutouts, sand, or **pinscreens**. For stop-motion animation, a digital video or film camera is placed on a tripod so the action can be filmed frame by frame, moving characters, objects, and camera after almost every frame. Computerized motion control equipment is available to make this process easier and more precise.

Game Production

Game production is quite different from TV or film production, and different kinds of games are obviously produced differently. The process is too complicated for the scope of this book, but remember that few games have budgets as large as feature films. Technical knowledge is essential for working in that industry.

Student Production

If you are making a student film or video, you'll abbreviate the traditional production process in a way that makes the best use of your expertise, crew, time, budget, and the equipment available to you. Ask your teacher for guidelines. There are many computer software programs that can help you make a film or video without a huge staff. Flash computer software makes it comparatively easy for you to make a film on a limited budget entirely by yourself. Attempt only what you can effectively produce. The longer the film, the better it should be to hold audience interest.

Other Production Considerations

The size of the budget is a consideration in all animation writing. Feature films made by large companies like Sony or DreamWorks have deep pockets, but their pockets aren't bottomless, especially in bad times. Smaller film companies work with tighter budgets. Some games have big budgets but not as big as those of a major film. Many game companies make low-budget games. The television industry can do a great deal on a very small budget.

In production, technology is a factor—what can be done and what can't. The larger companies have invested more in developing and buying high-end software. So it may be possible to produce animation with skin, fur, and water that looks real. It's conceivable to replicate actual people, but the cost is great, and there are legal issues. It is possible to make multiples of people, trees, or buildings for crowd scenes, forests, or cities. Again, the cost will probably be prohibitive for lower budgets. Software now makes it possible to animate those crowds without the digital actors running into or through each other as they did in earlier days. There have been great strides in computer character animation. Today, nuances in acting can be achieved that were impossible just a few years back, but, again, this comes with a high price tag.

Changes

Anyone who has ever worked at an animation company where at least some production is done on the premises has horror stories about changes to the script or characters after production has already started. If you knew the effect of casual changes on morale, meeting deadlines, and the budget, you would never, *ever* consider them after production has begun. Remember that even one scene may involve hundreds and hundreds of drawings or images. Because animation is so labor-intensive, even in CGI, scenes in a single episode of a television series might be spread out over many departments and sometimes even over different companies. In a big-budget feature scenes may be spread out over several companies and several continents. Overseas contract companies might suddenly find that they have more work than they can handle at any given time and farm out some of their work to a subcontractor.

Typically, scenes do not go through the pipeline in order. Instead, they go through as *fast* as possible. So if scene 108 is animated before scene 2 (because it is shorter, easier, or being animated by a faster artist), it moves on ahead to the assistant to clean up, and if that

assistant works quickly, then the scene proceeds ahead to the checking department, and so on in the process. At any given time, scene 108 may be moving faster than scene 2, but scene 2 might catch up later and even pass it. CGI scenes are constantly being improved, but each minor improvement takes time. Of course, scenes are tracked.

Changes can increase costs tremendously. There was a time in television animation where changes were simply not made once production started because of budget concerns. If a change is made in scene 2, it's likely that changes must be made in other scenes to match the original change. Artists are interrupted. Some scenes are changed and others are forgotten. Suddenly the orderly production process is like a gourmet dish of Eggs Benedict morphing into scrambled eggs with broken shells and a chicken feather poking out the top.

Be sure that the script, storyboard, and designs are in excellent shape before you begin production, even if that means falling behind a week or two (or even a month or two). Allow yourself plenty of time for **development** before the clock starts ticking.

Preparing for Tomorrow

The world is changing ever more rapidly. Who knows what direction the world will take tomorrow? Animation is now created for all age groups and for many media. The more that you can learn, the better you'll be able to write and develop for this industry. And you'll need to continue learning all your life just to keep up. Read about trends, fads, and predictions for the future. Learn to assess what you need to know, and take the responsibility of finding a way to learn it on your own.

Creativity Versus Profit

We all crave a good story well told. Our souls long for something fresh and creative. In school it's okay to experiment and fail. But let's consider the animation industry for a moment. The industry wants and needs creative people, but it is first and foremost a business. Business executives don't like failure! If executives perceive that a choice must be made between creativity, freshness, and art or staying out of bankruptcy and making lots of money, money will win out pretty much every time. If you want to work in the industry and be successful, you need to understand that basic fact. Keeping a job means producing what's practical and what will bring in money; unfortunately, sometimes creativity gets lost somewhere along the way. Don't lose your creativity or your love of animation! Try to be creative *and* remember the audience *and* the budget for your project. This is a book about it all: learning to write creatively and well, and working successfully in the animation industry.

Exercises

1. Rent some old silent films like Laurel and Hardy or Charlie Chaplin. What did you learn?
2. Find a story that migrated from a less visual medium (like a book or play) to animation. Compare the story in both mediums. How did it change?
3. Pick a short story and make a list of all the ways you could make it more visual for animation.
4. Watch a couple of children's cartoons, or watch an animated feature film. How did the writer make the stories and humor visual?
5. Research puppet, clay, or cutout animation. Do any of these techniques interest you enough to use them on a future project?
6. Go to the library or surf the Internet for more on animation production.
7. Diagram the animation production pipeline.
8. Visit an animation studio.
9. Start the initial planning for a student film. What type of animation might you use? Traditional? 3D? Cutout? How will you get all the necessary production steps done in the time you have? Discuss in class.
10. What do you think the animation industry will be like in twenty years? In fifty? What influences might change it? Discuss.

CHAPTER 2

The History of Animation

Beginnings

There are those who claim animation goes back as far as cave drawings that flickered in the light of early fires and danced on the walls like spirits coming to life. However, it wasn't until 1824 in the United Kingdom that Peter Mark Roget—the same Roget responsible for the first thesaurus—published *Persistence of Vision with Regard to Moving Objects*. His findings that each image is held on the retina of the eye for fractions of a second before the next image replaces it led to further study of this phenomenon: the perception of movement occurring when images replace each other rapidly. Think of a flipbook.

Others experimented with this phenomenon. In 1825 John A. Paris of England made a simple optical toy, the **thaumatrope**, which used only two images. In 1832 Joseph Plateau of Belgium invented the phenakistiscope, a cardboard disk with successive images that could be spun on a pivot. The images appear to move as you look through slits that serve as a shutter on a second disk. In France Emile Reynaud built another device with colored strips of paper on the inside surface of a cylinder attached to a pivot, similar to the **zoetrope** toy that had been invented in 1834. Reynaud patented his **praxinoscope** in 1877. About the same time Reynaud was making his experiments, Eadweard Muybridge, a California photographer, was photographing animals in motion. These images, which were shown in France in 1881, could be projected from transparencies so they appeared to move. Reynaud's hand-drawn films, his *pantomimes lumineuses*, were projected onto a screen at the Grévin Museum in 1892.

Early cameras could not shoot frame by frame, but the crank of the camera could be stopped and restarted, so images could be changed while the camera was off. James Stuart Blackton, who was born in Great Britain, made caricatures by using this method in the late 1890s. Another Briton, Arthur Melbourne Cooper, made the first animated film ever using animated matches. By 1909 Emile Cohl of France had made more than forty short films with humor and great style, and he continued making animated films until the early 1920s. In Europe there were many experimental and hybrid films produced during this period using various combinations of stop motion, live action, and animation. Italian artist Arnaldo Ginna

made animated films in 1910 by painting directly onto the film itself. In the United States, Winsor McCay made his first animated film in 1910 to include in his vaudeville act.

Mainstream Animation in the United States

Winsor McCay had been giving chalk talks, making drawings on stage that changed as he modified them during his presentation. *Little Nemo*, Winsor McCay's first animated short with 4,000 drawings on film, was really the birth of animation in the United States. The film was distributed in theaters at the same time that McCay was using it for his vaudeville act. McCay made other films including his masterpieces *Gertie the Dinosaur* (1914) and *The Sinking of the Lusitania* (1918), a moving dramatic film. He always saw animation as an art form.

After 1910 New York City became an animation center. Animation there was linked to the comics and vaudeville with three main studios: the Bray Studios, Raoul Barré's, and Hearst's International Film Service. Around 1913 John Randolph Bray, a newspaper cartoonist, made what's considered to be the first commercial cartoon. Bray also received a patent for making cartoons on translucent paper so portions of the cartoon that moved could be added separately. Celluloid (cel) was mentioned in his patent, and it later transformed the animation industry. In 1914 Earl Hurd, a former newspaper cartoonist, patented the same techniques that are used in traditional animation today. Raoul Barré, a French Canadian newspaper cartoonist, set up a studio with William C. Nolan in New York. In 1914 Barré introduced the use of standard holes in the drawing paper and the peg system to hold them. It was Nolan who discovered the system of using a background, drawn on a long sheet that could be maneuvered under the drawings, to provide the illusion of character movement. Around 1915 Max Fleischer invented the rotoscope, permitting live-action movement to be hand-traced frame by frame. William Randolph Hearst opened an animation studio in 1916 and brought comics like *Krazy Kat* to the screen. Although Hearst closed his studio after only two years, it was responsible for training a number of important animators. In 1917 Hurd joined forces with Bray. Bray's studio began making cartoons on a production line basis and served as a model for later studios. This studio employed young cartoonists like Max Fleischer, Paul Terry, George Stallings, Shamus Culhane, and Walter Lantz.

In the early days writers were unimportant to the making of animated films. Often the comic strip artist got credit for the film, and sometimes the animators were credited as well. Usually, the artist/animators were responsible for creating stories and gags. Most often the film was split up among a number of animators, each responsible for his own section. Since the gags were so important, plots often were harder to find than the animator at retake time. Some animators did have a natural story sense and wove a simple plot around their gags effortlessly.

The most successful cartoon studios in the 1920s were the three new East Coast–based studios formed by Pat Sullivan (an Australian), Max Fleischer, and Paul Terry. A young animator, Otto Messmer, went to work for Sullivan, and it was Messmer who later made Felix the Cat famous by giving Felix a personality. Max Fleischer created Koko the Clown and went on to animate Popeye and Betty Boop. Paul Terry was the first in 1928 to animate a

short that included sound: *Dinner Time*. Paul Terry and Frank Moser's studio, Terrytoons, later made cartoons with Mighty Mouse, Heckle and Jeckle, and Deputy Dawg. Other early studios included those of Van Beuren, Columbia, and Charles Mintz's Screen Gems. During the 1920s Walter Lantz moved to California and started a studio with Bill Nolan, who had worked with Barré. Walter Lantz and his studio became best known for Woody Woodpecker, Andy Panda, and Chilly Willy.

At that time a Kansas City boy began to make his first cartoons—Walt Disney. In 1922 Disney started his own company in his hometown. His first successful fable was *Alice in Cartoonland*, a series featuring a live child in an animated cartoon world. By the time this cartoon achieved fame, Disney had moved to California and set up shop with his brother, Roy. Ub Iwerks created Disney's Mickey Mouse, debuting in *Plane Crazy* in 1928. But Mickey's first huge success was his third film, the early sound film *Steamboat Willie*.

Disney revolutionized animated films. In 1932 his *Flowers and Trees* was the first animated film to use the Technicolor three-color process. His animated characters became real people with feelings and hopes. After trying and failing, those characters' dreams (and our own) always came true. The groundbreaker was *The Three Little Pigs*, each pig with a distinct personality. The Disney story department made detailed analyses of the main Disney characters. Disney himself had a remarkable story sense. He hired instructors to teach at the Disney studio, and his animators studied live-action film, acting, and comedy in addition to art. In 1934–1935 Disney expanded the studio, and in 1937 *The Old Mill*, a haunting short, introduced Disney's multiplane camera.

Soon Disney set out to do what many said could not be done successfully: animate a full-length feature film. Movies had become very popular during the Great Depression because they were a cheap way to escape the reality of tough times. In 1938 Disney released *Snow White and the Seven Dwarfs*. Disney went on to make many of the best-known animated films in history: *Pinocchio, Fantasia, Dumbo, Bambi, Cinderella, Peter Pan, Lady and the Tramp, Sleeping Beauty, 101 Dalmations, The Little Mermaid, Beauty and the Beast, Aladdin, The Lion King*, and, with Pixar, *Toy Story*, *Monsters Inc.*, and *Finding Nemo*. These films have been popular because they're great stories with loveable characters. *Who Framed Roger Rabbit* started the toon boom that began in 1988. The Walt Disney name is known worldwide.

Warner Bros. has been another huge influence on animation. In 1929 Hugh Harman and Rudy Ising from Disney produced the first short with a cartoon character that actually had dialogue: *Bosko the Talk-Ink Kid*. Leon Schlesinger pitched the idea of the talking cartoon series to Warners, and the Looney Tunes were born. In 1930 *Sinking in the Bathtub*, the first of the Looney Tunes, was released. Warner Bros. also produced Merrie Melodies, cartoons with titles taken from Warner's songs. Harman and Ising split with Schlesinger over budgets and took Bosko to MGM, but the Looney Tunes and Merrie Melodies remained at Warner Bros. By 1934 a young Friz Freleng was making Merrie Melodies with bigger budgets in color, but the tired formula that Harman and Ising used prevented the cartoons from becoming big hits.

Tex Avery wanted to try something different. Schlesinger gambled on Avery and his crew of Chuck Jones, Bob Clampett, and others, and in 1936 a new Warner Bros. cartoon

style was born with *Gold Diggers of '49*. Frank Tashlin contributed to the Warner Bros. style with his interest in camera angles, **montages**, and other cinematography influences. Soon Bugs Bunny, Porky Pig, Elmer Fudd, Daffy Duck, Tweety, Sylvester, the Road Runner, and Wile E. Coyote became Warner Bros. stars. In the 1960s the studio stopped production of cartoon shorts, and the animation unit shut down. Chuck Jones starred some of the classic characters in TV specials and a feature film in the 1970s. Then the animation studio was resurrected in the 1980s. Warner Bros. experimented with an animated feature division, releasing *The Iron Giant* and several films that combined animation and live-action film. New series and new characters have been developed for television. With the purchase of Hanna-Barbera in the 1990s, Warner Bros. controlled the Hanna-Barbera characters and series library as well. And in television, home video, and merchandise the classic Warner Bros. characters that were developed by animators over the years continue to please children and adults all over the world.

When Harman and Ising left Warner Bros. in 1934, they started an animation division at MGM, taking many of their former staff with them. Once again Harman and Ising made their own version of the Disney Silly Symphonies series, this time naming the series *The Happy Harmonies*. Bosko was soon dropped. The new characters were impressive, but the stories were weak. MGM replaced Harman and Ising with Fred Quimby, who hired new animators from both coasts, including Bill Hanna, Joe Barbera, and Friz Freleng. The new cartoons flopped, and Harman and Ising returned. It was Hanna and Barbera's Tom and Jerry that became the big hits in the early 1940s. About the same time Tex Avery arrived at MGM to round out the classic MGM animation staff. Avery was famous for his timing and his wild gags. The average Tom and Jerry cartoon short took a year and a half from the beginnings of the story to the completed film. By now writers were occasionally getting story credit, but the economics of the big studios were changing. Showing cartoons and newsreels in theaters with a double feature was popular but unnecessary to distributing the films, and in 1957 MGM closed its cartoon studio.

In the early 1940s some of the younger Disney artists were active in the Disney strike, and they eventually left Disney. By 1944 Zack Schwartz, Dave Hilberman, and Stephen Bosustow all had new day jobs, but they were looking for extra work. When the United Auto Workers wanted to sponsor a pro-Roosevelt campaign film, the three formed a company and bid on the film. After these moonlighters and their staff completed their film, the three changed the name of their new company to United Productions of America, later called UPA. The company became known for its satire and its modern, flat, graphic style, and the animation was more limited. Later Schwartz and Hilberman sold out to Bosustow. The studio became associated with Columbia and began to create its own characters, among them Mister Magoo and Gerald McBoing Boing, a concept by Theodore Geisel. UPA went on to make a wide variety of films including *Rooty Toot Toot* and *The Tell-Tale Heart*. John Hubley (known for his independent films), gagman Tedd Pierce, storyman Leo Salkin, Jimmy Teru Murakami (who later opened studios in the United States and Ireland), Bill Melendez (who animated *Charlie Brown*), Gene Deitch (who has claimed he received all his animation training at UPA), and Hungarian Jules Engel (independent animator and teacher for years at Cal Arts School) were just some of the people who worked at UPA. A declining

UPA was sold to Henry G. Saperstein, who made low-budget television cartoons in the early 1960s before the studio finally closed.

Other studios came and—often—went. More notable companies included Celebrity Productions (Ub Iwerks' cartoons) and Paramount/Famous Studios (*Popeye, Superman*). Later during the 1970s and 1980s Ralph Bakshi made animated films for adults (*Fritz the Cat* and *Heavy Traffic*). Joe Ruby and Ken Spears, former writers for Hanna-Barbera, formed Ruby-Spears and made a string of hit television shows during the 1980s. Ross Bagdasarian produced *Alvin and the Chipmunks*. Art Clokey and Will Vinton were known for their stop-motion or Claymation films.

Television had arrived, but it wasn't until the late 1940s and early 1950s that the average family in the United States could afford to buy one. Color television did not become widespread until the mid-1960s. From the arrival of the first sets, television was tremendously popular. At first people would watch anything that was broadcast. There were only three networks in the United States, so everyone was watching the same shows, and these shows were a major topic of conversation at work or school each day. People tended to think alike, since most had lived in the United States all their lives and consumed the same news and entertainment. Early television cartoons were 1950s shows like Jay Ward's *Crusader Rabbit*, the first made-for-television cartoon and the show that originated limited animation for TV, *Bozo the Clown*, and *Clutch Cargo.*

During the early years of television, the networks produced many of their own shows and sold the reruns both in the United States and internationally. Distribution was a huge source of income for the networks. There were only three places that production companies could sell their ideas in the United States: ABC, CBS, and NBC. Advertising revenues were huge. The networks had tremendous power, and they weren't afraid to use it. All over the world people with access to television eagerly watched U.S.-made programming. U.S. culture through movies and television saturated our planet, and not everyone was happy about that. During the 1970s the U.S. government stepped in to loosen the monopoly of the networks. Financial interest and syndication regulations, called fin-syn rules, went into effect in 1970. Now it was the studios that owned the product; after a run on the networks, the production companies were free to syndicate their own shows and reap the profits. Animation companies, and the syndication companies that sprang up, were now in the business of selling reruns to local stations across the country and around the world. In the 1980s cartoons based on toys were allowed under deregulation. Syndication became a big business. Independent animation companies could prosper.

When MGM closed its doors in 1957, Bill Hanna and Joe Barbera found themselves suddenly unemployed. The market for film shorts looked bad, but television was still new, and Hanna and Barbera felt they could make animated cartoons cheaply enough that they could be sold profitably for television. They developed a production system using limited movement and reusing animation whenever possible. At about that same time advertisers discovered that adults weren't watching TV on Saturday mornings, so the advertisers were eager to use that time to reach an audience of kids. Hanna-Barbera thrived. *The Flintstones* became the first animated, prime-time television show. By the end of the 1970s almost every children's television show in the United States on Saturday morning TV was made by

Hanna-Barbera Productions. Hanna-Barbera trained animators around the world to help with their vast production needs, and in turn Hanna-Barbera shows were sold to broadcasters around the world.

Other companies like Filmation, DIC, and Marvel sprang up. Filmation did well making *He-Man and the Masters of the Universe* and *Fat Albert*. Both Hanna-Barbera and Filmation experimented with animated feature films during the off-season when they had no television shows to produce. They wanted to keep their artists employed and lessen the financial risk of depending solely on TV to provide revenue. Unfortunately, the films that both Hanna-Barbera and Filmation made during the early 1980s with relatively low budgets and newly trained animators brought in disappointing profits.

Originally, DIC was a French company, but Andy Heyward, an ex-Hanna-Barbera writer, acquired the company and moved it to the United States in the 1980s. Heyward was an excellent businessman who offered to license his new shows for free to U.S. television stations or station groups. In exchange DIC would retain some of the advertising time within these shows to sell for profit. Marvel started up about this same time. Competition from DIC and Marvel, which kept minimum staffs in the United States and sent most of their production work overseas, was part of the reason that Filmation went out of business. Hanna and Barbera, both by now in their seventies, sold out to Ted Turner. Children's cable burst into the picture, first with Nickelodeon and later with Cartoon Network and other children's channels.

In 1990 the U.S. Congress passed the Children's Television Act, mandating educational children's programming. This was later modified to require that stations air at least three hours of core educational programming for children per week. Government regulations had influenced children's programming, for better or worse, throughout the 1970s and 1980s.

Animation once again went through a golden age in the United States during the 1990s. Disney started producing animation for television. DIC sold out to Disney and was bought back by Andy Heyward. Film Roman had started up in the 1980s with service work on *Garfield*, *The Simpsons*, and *King of the Hill*. In the 1990s it branched out into developing its own product and starting up Level 13, a venue for Internet shorts. The future of the Internet looked rosy, and animators and animation developers were courted everywhere. John Kricfalusi's *The Ren and Stimpy Show* brought in a new style of animation. Schools were churning out young animation stars. Cable began to grow while cable costs declined. Cable, the Internet, and even prime-time TV began to feature animation that was targeted at adults after the success of *The Simpsons*. The home video business began to grow. Companies like Saban Entertainment were making and distributing animation worldwide. Nickelodeon, Cartoon Network, and Disney were distributing animation internationally by satellite.

Then the bubble burst. Money spent on the Internet was not reaping profits. The big three television networks were losing advertisers because the advertising dollars were spread too thin. Fox, Warner Bros., and the UPN networks had all started up between 1986 and 1995, the cable stations were growing, and the Internet was also competing for advertising. More children in the United States had two working parents and got shuffled off to sports and other activities or spent quality time with a divorced parent they saw only on weekends. Children spent more of their time with video games or computers, or they watched direct-to-video movies. They weren't watching as much TV.

Hugh Harman and Rudy Ising make the first cartoon with dialogue, *Bosko the Talk-Ink Kid*. Warner Bros. animation is born.

1928 **1929**

Steamboat Willie, an early sound film, makes Mickey Mouse famous.

Games became a big business worldwide. Ralph H. Baer conceived the idea of interactive games that could be played on a TV set back in 1966. He made a prototype of the first home video game system, The Odyssey, in 1967, and the system was introduced in 1972. Atari founder Nolan Bushnell brought out the first video arcade machine, Computer Space, in 1971. Games became big competition for television.

In the 1990s the fin-syn rules were eliminated, and the television networks were once again allowed to own and sell their own shows. The production studios were not pleased. The U.S. government's reasoning was that there were now so many outlets for news and entertainment, there was no longer the need to regulate the industry so tightly. This and the formation of the European Union led to a big buying spree by the major entertainment companies. The U.S. entertainment industry consolidated into just a few major companies that could make and distribute their own products throughout the world.

Suddenly there was too much product, too many people in the animation business, too few places for small companies to distribute their product, too few children watching any single television show or film on any single day, and too little profit. With children's programming on cable every day all week long, Saturday morning was no longer special. Some U.S. networks outsourced their entire Saturday morning children's programming to another company: CBS to Nelvana and then Nickelodeon, Fox to 4Kids Entertainment, and NBC to Discovery Channel. Teenage and adult males, who had earlier expanded the market for animation, played video games or found other things to do. People outside of the United States wanted to develop their own animated projects, and many companies worldwide felt very capable of developing and producing animation on their own. Not only were the Europeans and the Japanese selling their own programming locally, some of that locally produced programming was selling to the U.S. market as well. A big influence on animation, globally, was Japanese **manga** and **anime**. Both the graphic anime style and the content influenced action cartoons in the United States and some features as well, particularly in the 1990s and into the new century. All of these factors sent profits down, and the U.S. animation industry suffered massive layoffs. Even the companies that survived were not doing well. Many small companies like Porchlight Entertainment began to look for co-productions with companies internationally. Some companies began to tailor programming specifically for localized audiences outside the United States.

Independent Animation in the United States

Worldwide a lot of independent animation has been rooted in art with little or no story. European avant-garde-inspired artists like Maya Deren, painter Mary Ellen Bute, illustrator Douglas Crockwell, painters Dwinell Grant and Jordan Belson, filmmaker Harry Smith, photographer Hy Hirsch, plus Charles Eames and Saul Bass, who made films in the 1930s, 1940s, and 1950s. Some of the best-known, independent animators in the United States were John and Faith Hubley (a writer) who made films like *The Adventures of*, Moonbird, Of Stars and Men, The Hole, Windy Day, Cockaboody, Everybody Rides the Carousel,* and *Second Chance: Sea*. Jules Engel made *Landscape, Accident, Train Landscape, Shapes and Gestures,*

NBC transmits its first night of television broadcasting, which includes the Disney cartoon *Donald's Cousin Gus*.

1938 **1939**

Disney releases the first full-length feature, *Snow White and the Seven Dwarfs*.

Wet Paint, Rumble, and *Play Pen*. James Whitney made outstanding, nonobjective films including *Yantra, Dwija, Wu Ming, Kang Jing Xiang,* and *Li*. His brother, John Whitney, was the father of CGI and made scientific and CGI films including *Film Exercises* (with James Whitney), *Permutations, Matrix* (a series of three films), and *Arabesque*. Other well-known independent filmmakers in the United States include Robert Breer, Ed Emshwiller, Van Der Beek, Larry Jordan, Ken O'Connell, David Ehrlich, Jane Aaron, Ernest Pintoff, John Canemaker, Sally Cruikshank, Michael Sporn, Bill Plympton, Cynthia Wells, and Christine Panuska.

Canadian Animation

Some Canadians who were involved in early animation include Raoul Barré in New York, Walter Swaffield and Harold Peberdy in Toronto, Loucks and Norling in Winnipeg, and Bryant Fryer in Toronto. In 1927 Fryer was working on a film series with silhouettes, *The Shadow-laughs*. Only two of the series were completed, but the films are impressive.

It wasn't until Norman McLaren, a Scotsman, came to Canada in 1941 to become a member of the National Film Board of Canada that Canadian animation really was born. The artists there were encouraged by McLaren to use their own styles as they worked on propaganda films for the war. Film Board artists included George Dunning, Jim McKay, Grant Munro, Jean-Paul Ladouceur, and later Alexandre Alexeïeff and Paul Driessen (a Dutch animator). After the war some of the first artists left the board for greener pastures. The board itself went on to promote Canada and its technical research and to encourage its artists. Canadian animation management talent was nurtured there. Independent animators who worked on the board had the security to make their own films. In 1977 Derek Lamb took over, but the Canadian government cut the budget in 1978, and the quality of the work went down. However, in the 1980s the board's animation was decentralized, opening up new opportunities in Winnipeg, Vancouver, Edmonton, and Moncton. Later Film Board animators included Ryan Larkin, Pierre Hébert, Evelyn Lambart, Richard Condie, Janet Perlman, Joyce Borenstein, and Ellen Besen. In Vancouver there were Al Sens and Marv Newland; in Toronto, Al Guest; in Montreal, Gerald Potterton, Ishu Patel (originally from India), and Caroline Leaf; and in Québec, Frédéric Back (*Crac*), who all made their own independent films.

Ottawa has annually hosted an internationally recognized animated film festival that's focused on independent and student films. Canada's large animation industry has included companies like Nelvana (*Babar, The Magic School Bus, Rolie Polie Olie*), Decode Entertainment, Bardel Animation Ltd., Teletoon, Studio B Prods., CineGroupe, Mainframe Entertainment, and Cinar (*Arthur* and *Paddington Bear*), producing animation that is seen throughout the world. The industry has been able to deliver a high-quality product for a low cost partly because of the financial support given by the Canadian government.

European Animation

In the United Kingdom Arthur Melbourne made the very first animated film *Matches: An Appeal* in 1899. Walter P. Booth filmed *The Hand of the Artist* in 1906, and Samuel Arm-

strong created *The Clown and His Donkey* in 1910. During World War I satirical illustrators and comic strip artists made films lampooning the Kaiser. Ansor Dyer and Dudley Buxton completed their war propaganda films, and after the war they graduated to a series called *Kiddigraphs*. Other English animators were also filming series. Animation studios were starting up, but the films of this era were exhibited almost exclusively in Great Britain and were not seen by animators on the continent. In 1929 Len Lye, a New Zealander trained as an animator in Australia, shot his first film *Tusalava*, funded by the London Film Society. Lye later made other exceptional films painted on film stock and using puppets.

During World War II, advertising, the traditional moneymaker for animation, all but disappeared, but wartime propaganda kept animation alive. Larkins Studio was founded during the 1940s, and it revolutionized style. Halas & Batchelor was founded in 1940 and became one of the most respected animation studios in the world. John Halas was originally from Budapest, and Joy Batchelor was an English animator and writer. The studio completed *Animal Farm* in 1954. George Dunning and John Coates founded TVC in 1957.

England was a center for animation in the 1960s with films, TV series, educational animation, and advertising. In 1965 Richard Taylor founded his own studio. Halas & Batchelor produced the United Kingdom's first TV series in 1960. In the late 1960s the company was one of the first to turn to computer animation. George Dunning completed his *Yellow Submarine* in 1968. Cosgrove Hall (*The BFG, Dangermouse, Duckula*) was founded in 1976 by Brian Cosgrove and Mark Hall, who were college friends. It's been one of the biggest cartoon studios in Europe. *Watership Down*, directed by John Hubley and later Tony Guy, was completed in 1978. In 1972 Peter Lord and David Sproxton founded Aardman Animation in Bristol and produced series for the BBC and Channel 4. The BBC has traditionally been the largest funder of children's programming in England.

Much of the television animation in England in the early 1980s was still purchased from the United States, but that began to change as Channel 4 commissioned British animation, Thames Television financed Cosgrove Hall, and S4C in Wales founded Siriol. By 1987 there were over thirty studios in London alone, with others spread throughout the British Isles. Most of these were small studios that employed freelancers. Telemagination has been TV-Loonland's main production center. Granada Kids produced many children's programs, and Pepper's Ghost Productions made 3D TV series. Other producers have included Hit Entertainment (*Bob the Builder*), Tell-Tale, Entertainment Rights, Tiger Aspect, Spellbound, Contender, Chorion, and Create TV.

Until 2002 British TV producers could receive tax benefits that helped to raise upfront funding. With that help gone and license fees down, animation in the United Kingdom hit a slump. Traditionally, much of British TV animation had been created for the preschool market. More recently, CBeebies and CBBC have launched, and now British kids have two channels of their own.

The United Kingdom has had its share of important individuals in animation. They've included Tony White, who is known for his book on animation as well as his work at his own company: Animus. Canadian Richard Williams has worked mostly in London, but he completed his film *Raggedy Ann & Andy* in the United States. Bob Godfrey, an Australian, has made a number of cartoons in England, mostly for adults. Some have been made in

collaboration with another Australian, writer Stan Hayward. Hayward has also collaborated with Dunning, Williams, and with Halas & Batchelor. Puppet animator Barry Purves has made independent films such as *Next: The Infinite Variety Show* (1989). Animator/Director Nick Park made his Wallace & Gromit films at Aardman Animation Ltd.

Aardman Animation also produced the animated feature *Chicken Run*. *Dominator* was the United Kingdom's first full-length CGI film, an adult feature. Newer companies like Bazley Films got their start producing Flash animation productions. In 2003 Channel 4 made a large commitment to develop new talent in the United Kingdom by financing animated shorts and specials.

Over in Germany Lotte Reiniger with her striking silhouettes, Hans Richter, Walter Ruttmann, and Viking Eggeling all made early films between 1919 and 1930. During the 1930s and 1940s German animators tried to compete with Disney. Hans Fischerkoesen founded a large studio, and Horst von Möllendorff collaborated with him. Ferdinand Diehl also started a production company with his brothers, making puppet films. His puppet Mecki the hedgehog became famous. Hans Held and Kurt Stordel both founded their own animation studios. Later Stordel headed the animation department at UFA. Hans Fischinger made avant-garde films. Abstract art was prohibited during the Nazi reign, and abstract artists had to hide any animation they wanted to make at that time. Hans Fischerkoesen founded studios both before and after World War II, and Gerhard Fieber founded the EOS studio after the war. The Diehl brothers continued to make films after World War II, and Kurt Stordel made children's films for German TV in the 1960s. In 1962 two German animation producers, Wolfgang Urchs and Boris Von Borresholm, signed the Oberhausen Manifesto, which initiated a new German cinema and opened up new opportunities. During the 1980s Berlin Film and AV developed television series for Iraq. A major festival was started in Stuttgart in 1982. Other important artists included Helmut Herbst, who influenced many animators, and Ulrich König, who made some of his films at Pannonia in Budapest. The brothers Christoph and Wolfgang Lauenstein won an Oscar for their 1989 film *Balance*.

After World War II East German animation had to begin again from scratch. In the 1950s a few animated properties were completed by the Studio für Popularwissenschaftliche Filme. DEFA was officially founded as the national production center for animation in 1955 and produced mainly children's animation, but some political animation was produced for adults as well. East German animators included Bruno Böttge, Klaus and Katja Heinitz Georgi, Kurt Weiler, Günter Rätz, and Otto Sacher. The absorption of East Germany into the German economy in the last part of the twentieth century has been a long-term problem. By 2002 the economy was slow. Giants like KirchMedia and Bertelsmann were having their own troubles, complicated by consolidation, the lack of business in the expanded pay TV market, a huge surplus of content, and problems throughout the European market.

Comedy films for children were produced in Italy as early as 1920. In 1938 Nino Pagot formed his own production company making propaganda films, and in 1946 he made the film *Lalla, piccola Lalla*. In the 1940s films were still made while World War II raged. By the late 1950s RAI-TV decided to permit advertising, and animation exploded, especially in Milan. The first series was *Carosello*. Animators were able to experiment with this series and hone their skills. At the time, one of the largest studios was Gamma Film. More recently,

Yugoslavia animators learn limited animation techniques and win an an award for *Nestasni robot* (*The Playful Robot*), the first film of the Zagreb School.

1944 **1955-1956**

An election campaign cartoon for Franklin D. Roosevelt is the first completed film of the fledgling company that becomes UPA, noted for its simple graphic style and its limited animation.

studios like Rainbow Animation S.R.L. and Mondo-TV produced animated series. RAI financially supports Italian projects animated in Italy. In Rome Ezio Gagliardo founded Corona Cinematografica, which made traditional European folktales into shorts. Other filmmakers included Bruno Bozzetto, Guido Manuli, Emanuele Luzzati with Giulio Gianini, Osvaldo Cavandoli, Manfredo Manfredi, Cioni Carpi (who also worked at the National Film Board in Canada), and Dario Picciau (*The Egg*).

In Spain in 1905 Segundo de Chomón made *Choque de trenes* (*Train Collision*), a masterful film using models. Caricaturist Fernando Marco made a popular film about a bull in 1917. More films, including some with puppets, were made in the 1930s before the Civil War stopped production. After that war Spanish animation enjoyed a golden age, centered in Barcelona. In the 1940s two companies, Hispano Gráfic Films and Dibsono Film, merged into Dibujos Animados Charmartín, and the new company put out three film series. Also in the 1940s Arturo Moreno made the film *Garbancito de la Mancha*, and about the same time former animators of Charmartín made *Erase una vez*. Spanish production companies like ICA Films, Icon Animation, D'Ocon, Estudios Moro, Estudios Vara, Estudios Castilla, BRB International, Pegbar, Filmax, and Cruz Delgado's company made films and television series. During the first few years of the twenty-first century, television work was slow, and local companies concentrated on making films. Filmax made a number of films, including *Groomer, Nocturna, Don Quiote and Sancho*, *El Cid, the Legend*, and the co-production of *P3K Pinocchio*. Independents José Antonio Sistiaga and Rafael Ruíz Balerdi made painterly films.

Portuguese animation was probably pioneered as early as the 1920s. Cartoonist Artur Corrêia and Ricardo Neto made folktale films in the 1970s. Democracy returned to Portugal in 1974, and a new attitude was born. The Cinanima Festival was started in 1976. This and government support helped to train a new generation of Portuguese animators. Mario Vasques das Neves, Artur Corrêia, and Ricardo Neto produced animation at their Topefilme company. Other important animators include Abi Feijó, Regina Pessoa, Christina Teixeira, Pedro Serrazina, and José Miguel Ribeiro.

Emile Cohl was making animated films in France before 1910. Robert Collard (Lortac) founded the first animation studio in Montrouge, France, in 1919. Lortac had studied under Emile Cohl. Fernand Léger made *Ballet* in 1924, combining live-action, painting on film, and traditional animation. Marcel Duchamp also made an animated film. Much of French animation during the 1930s was advertising, but some series and a few shorts were produced. In 1932 an Englishman, Anthony Gross, founded the studio Animat in Paris, and in 1936 Paul Grimault and André Sarrut founded Les Gémeaux. Hungarian Jean Image made the first French animated feature, *Jeannot l'intrepidé*, in 1950.

After the war Paul Grimault made several films in France, but the most outstanding was *Le roi et l'oiseau*. Grimault helped the young Jean-François Laguionie make his first film. Laguionie went on to make many films, his best being *La traversée de l'Atlantique à la rame*. Other important French animators included René Laloux, and Polish-born filmmakers, Walerian Borowczyk and Piotr Kamler. In the 1950s the Association Internationale du Film d'Animation (ASIFA) and the Annecy Festival were born. ASIFA has been active worldwide ever since, promoting animation and independent animated films as well as those done

by the major studios. French television ORTF funded many French animation projects, including those of Laguionie and Jacques Rouxel, who produced one of France's best-known TV series, *Shadoks*. Writer René Goscinny made feature films based on Astérix le Gaulois and founded the studio Idéfix.

Hard times came to animation in France during the early 1980s with unemployment around 70 percent, but the ministry of culture founded OCTET to serve as an intermediary to help the various sectors of the industry. In 1984 France Animation was founded to set standards for production companies. After the mid-1980s animation grew tremendously in France. A tax to French broadcasters by the government, redistributed to producers by the National Center for Cinema (CNC), helped to fund children's programming. Minitreaties with countries like Canada and Australia fostered co-productions.

The main French market has been Western Europe, but there have been some sales to Asia and the United States as well. Companies like AnteFilms, Futurikon, Folimage, Millimages, Kayenta Production, Dargaud-Marina, Marathon, and Toon Factory have been active in television. By 2002 the financial problems at Vivendi Universal added to the general problems throughout the European market.

Robert Réa produced the features *Babar* and *Corto Maltese: La cour secrete des Arcanes* (a Franco-Italian co-production) and for TV *Tintin* and *Blake and Mortimer*. Didier Brunner's Les Armateurs production company produced *Kirikou et la Sorcière* and the features *Princes & Princesses*, *The Boy Who Wanted to Be a Bear* (co-produced in Denmark), and *Les Triplettes de Belleville*. Other features included *Les Enfants de la Pluie, Charley & Mimmo, Loulou and the Other Wolves, T'choupi & Doudou*, and *Totally Spies*. *Kaena la Prophetie* was France's first 3D animated feature.

Belgian animation began in the 1920s with advertising films made by the Houssiaus, a father-son team. In 1932 Ernest Genval, Leo Salkin, A. Brunet, and M. Van Hecke made a couple of adult-themed puppet films. The CBA studio was founded in 1940 during the German occupation, and other films were made in Antwerp before the war was over. In 1948 the Misonne studio released the first Belgian feature, *La crabe aux pinces d'or*. Belvision, makers of *Tintin, Astérix, Lucky Luke*, and the Smurf film *La flute à six Schtroumpfs*, was founded in 1955. TVA Dupuis was founded in 1959 to make a Smurf TV series. Kid Cartoons got its start in 1976, and Atelier Graphoui was established in 1978. One of Belgium's most famous animators, Raoul Servais, made many films between 1960 and the late 1970s, including *Harpya*.

Writer/illustrator/actor Robert Storm-Petersen released animated films made by his own production company in Denmark from about 1916 until 1930. Allan Johnsen produced the film, *Fyrtøjet*, and Bent Barfod made *So Be It Enacted* at his own studio in 1964. In the 1960s Denmark financed art shorts. These were mostly films with cutouts and other low-cost animation. Many of the themes were social. Jannik Hastrup made political and social films, some of them radical. In 1984 Hastrup finished *Samson & Sally*, a feature about whales and pollution, and in 2003 he released *The Boy Who Wanted to Be a Bear* (co-produced in France). Lejf Marcussen, who worked in the TV department of Danmarks Radio, made non-figurative films with images and sound but no plots. Other popular filmmakers included Svend Johansen, Anders Sorensen, and Jorgen Vestergaard.

Victor Bergdahl animated his comic strips in Sweden from 1915 to 1930, and several other Swedish animators turned out films during this same time. In 1953 Gunnar Karlsson founded GK Film (*Patrik and Putrik*). Then in 1956 Stig Lasseby started Team Film, which produced many TV series, specials, and films. The first Swedish feature was *I huvet på gammal gubbe* in 1969. Rune Andreasson created a series about a bearcub, Bamse, in the 1960s, and he continued to make occasional new episodes into the 1980s. Filmtecknarna Celzqrec was founded in 1981 by Jonas Odell. In 1982 Jan Gissberg and his brother founded Cinémation. Other prominent animators include Per Åhlin, Lennart Gustafsson, Peter Cohen, Gilbert Elfström, and Karl-Gunnar Holmqvist. More recent Swedish animation has had no particular style, but most of it has been for children and has focused on social themes.

In Moscow Ladislas Starewich experimented with stop-motion animation in 1910. After the revolution he moved to France to continue making his films. Soviet animators made political and satirical films. An animation department was organized within the government-run Sovkino studio in 1928. Important films of the era were Juri Zheljabuzhsky's *The Skating Rink*, in 1927, and *Post Office,* directed by Mikhail Tsekhanovsky, in 1929. In that same year Lunacharsky stepped down as People's Commissar for Culture, sending the arts in Russia in another direction. A congress of Soviet writers, held in 1932, turned away from the avant-garde and spoke for socialist realism. Animation turned to the classics and to films for children, often with political or educational themes. The first director of Sojuzdetmultfilm, the new production center, was Alexander Ptushko.

The earliest Soviet films after World War II were traditional films in the Disney tradition. In 1953 puppet and cutout films were encouraged with the opening of a special section at Sojuzmultfilm. The primary artists during this postwar period were Ivan Ivanov-Vano, the Brumberg sisters (who made mostly education films), and Lev Atamanov. Arguably the most important Russian animator of the 1960s was Fedor Khitruk, who spent twenty-four years animating at Sojuzmultfilm before directing his own films. Others who made films during the period from the 1950s to the 1980s included Anatoly Karanovich, Roman Katsanov, Nikolai Serebriakov, Boris Stepantsev, Vadim Kurchevsky, Eduard Nazarov, Andrei Khrzhanovsky, and Yuri Norstein. In the 1980s a new philosophy of production decentralization crept in. All through the Soviet Federal Republics a wide range of animated films were being made, many of these folktales of the region. Priit Pärn in Estonia won a grand prize at Zagreb with his *Picnic on the Grass*.

Polish animation began in 1917–1918 with films by Feliks Kuckowski. Stanislaw Dobrzynski, Wlodimierz Kowanko, and others made films in the 1920s and 1930s. A puppet animator, Zenon Wasilewski, told tales of the local dragon and other favorites both before and after World War II. A group called Slask made films for state-run Film Polski. In the 1960s the Polish government decided to greatly increase production with as many as 120 animated films released in one year. Many of these Polish School films reflected Polish life at the time, with gray or dark images and themes of the struggle of man. By the new millennium Poland had developed a large television market. Other prominent Polish animators included Jan Lenica, Walerian Borowczyk, Miroslaw Kijowicz, Stefan Schabenbeck, Daniel Szczechura, Jerzy Kucia, Ryzsard Czekala, and Zbig Rybezynski.