

Production Information

The art of animation goes "to infinity and beyond" as Walt Disney Pictures and Pixar Animation Studios, a Northern California-based pioneer in computer graphics, join creative forces on the infinitely entertaining "Toy Story," the first full-length animated feature to be created entirely by artists using computer tools and technology. Four years in the making, this delightfully irreverent new comedy-adventure combines an imaginative story and great characters with the visual excitement of 3-D computer-generated animation. Conceived and directed by John Lasseter, a former Disney animator whose innovative work with Pixar includes the 1989 Oscar-winning short, "Tin Toy," this film represents a major milestone in animated moviemaking with its groundbreaking graphic style adding to the believability of a world where toys have a life of their own. With a cast of top vocal talent headed by Tom Hanks and Tim Allen plus three entertaining new songs and an inspired score by renowned composer/performer Randy Newman, the fantasy takes flight and provides extraordinary delights for moviegoers of all ages.

"Toy Story" represents an exciting first creative collaboration between Walt Disney Feature Animation and Pixar, a cutting-edge company which was incorporated in 1986 and has since established itself as the world's first "digital animation studio." It is the first in an exclusive three-picture arrangement between Disney and Pixar.

According to John Lasseter, "From the earliest stages of story development through to the final stages of post-production, Disney has been an invaluable collaborator providing us with their expertise in storytelling, feature film production and a fresh pair of eyes. They

encouraged us to place our greatest emphasis on the story and proved to be a great sounding board for us throughout the production."

"Working with John and the folks at Pixar on this film was a delight from the first day," says Thomas Schumacher, executive vice president of Walt Disney Feature Animation and the studio's main point person on this project. "One of the key elements to making 'Toy Story' such a successful collaboration was constant contact and communication. The Disney-Pixar partnership was clearly a case of one plus one equaling three. John knows how to create warm and appealing characters through this medium of computer animation better than anyone else in the universe and the work you see really comes from his heart and spirit, as much as it comes out of a computer box."

Producer Ralph Guggenheim adds, "There's a certain degree of magic that occurred in Pixar and Disney coming together to make this film. Each group stretched beyond what they normally do to create something new and different."

Just as Disney's experimental shorts of the 1930s served as a proving ground for that Studio's first feature, "Snow White and the Seven Dwarfs" (1937), so too did Pixar experiment with a series of award-winning shorts to prepare them for their feature film debut. Harnessing the very latest in computer technology, writing and perfecting their own proprietary software and assembling an outstanding team of artists, animators and technical wizards, the stage was set for one of the most ambitious film projects in the 100-year history of the cinema. By way of comparison, "Jurassic Park," which used computer graphics to create several of its impressive dinosaur sequences, had six minutes of CGI (computer generated imagery) and "Casper" has 40 minutes compared to the 77 minutes (or 1,561 shots) produced by Pixar for this film. From start to finish, "Toy Story" is one continuous eye-popping visual treat after another.

Computer animation combines the skills of traditionally trained character animators with the most sophisticated "pencils" in the world. Using computers as a tool, the filmmakers introduce a unique three-dimensional animation look, with qualities of texture, color, vibrant lighting and detail never seen before in traditional animated features. Characters have a dimensionality and realistic texture that adds to their believability and uniquely suits the needs

of this highly imaginative story.

Set in a world where toys have a life of their own when people are not present, "Toy Story" is a sophisticated "buddy comedy" featuring the voices of two-time Academy Award®-winning actor Tom Hanks, popular television comic Tim Allen and a wonderful cast of acting talents. Director John Lasseter, whose innovative work with Pixar includes the 1988 short, "Tin Toy" as well as "Luxo Jr." (an Oscar® nominee), "Red's Dream" and "Knickknack," provided the vision for a team of 27 animators, 22 technical directors and 61 other filmmakers. Ralph Guggenheim, Pixar's vice president of feature production, and Bonnie Arnold, a veteran filmmaker of live-action films ("Dances With Wolves," "The Addams Family," "The Last of the Mohicans," etc.) served as the film's producers. Edwin Catmull and Steven Jobs were the executive producers. Dr. William Reeves was the supervising technical director. Based on an original story by John Lasseter, Pete Docter, Andrew Stanton and Joe Ranft, the screenplay for "Toy Story" was written by Joss Whedon ("Speed," "Buffy the Vampire Slayer"), Andrew Stanton, Joel Cohen and Alec Sokolow.

"Toy Story" focuses on the relationship between two rival toys. There's Woody (Tom Hanks), a traditional pull-string talking cowboy, who has long enjoyed a place of honor as the favorite among six-year-old Andy's menagerie of toys. Admired and respected by the other toys, he is the de facto leader who keeps peace between the various and disparate personalities who tend to bicker amongst themselves. Quick to calm their anxieties about being replaced by newer arrivals, Woody finds his own confidence shaken, and his status as top toy in jeopardy, when "strange things" begin to happen.

Those "strange things" coincide with the arrival of Buzz Lightyear (Tim Allen), simply the coolest space action figure ever made. Complete with voice sampler, laser beam, karate chop action and pop-out wings, Buzz is a boy's dream come true but a pain-in-the-neck to his fellow-toy Woody. Suffering from the delusion that he is not a toy but the actual intrepid defender of the galaxies who has been sent to save the universe from the evil Emperor Zurg, Buzz's sole purpose after crash-landing in Andy's room is to get his spaceship (the box in which he was sold) fixed and continue his mission with the universe protection unit.

Much to Woody's chagrin, Buzz begins to monopolize all of Andy's attention and becomes an instant favorite with his toymates: Slinky Dog™, Woody's faithful and loyal sidekick, whose down-home southern drawl is provided by Jim Varney of the "Ernest" movies; Mr. Potato Head™ the cantankerous spud, who is appropriately voiced by Don Rickles; Hamm, the know-it-all piggy bank, voiced by John Ratzenberger, best known as America's most famous postman, Cliff Clavin on "Cheers"; Rex, the neurotic, sensitive and insecure plastic dinosaur, voiced by Wallace Shawn, and; Bo Peep, the beautiful porcelain lamp who lights up Woody's life, who is voiced by Annie Potts.

Woody plots to get rid of Buzz, but things backfire and he finds himself lost in the outside world with Buzz as his only companion. Joining forces to find their way home, the two rivals set out on an adventure that takes them to Pizza Planet, a galactic-themed fast food/arcade, and lands them in the clutches of Sid, a sadistic neighborhood kid who is notorious for dismembering and reassembling "mutant" toys in his bedroom. It is a toy's worst nightmare come true.

As "guests" of Sid and his dog, Scud, the two fugitive toys form an even closer bond. Buzz discovers that he is not a real space ranger and, with Woody's help and encouragement, learns his true value as a toy. Together, the cowboy and the spaceman forge a genuine friendship and learn that only through mutual trust and respect do they have any chance of survival.

Using a new generation of state-of-the-art software (developed by Pixar) and employing a team of top technical talents and artists specially trained for this unique form of animation, "Toy Story" combines technical artistry with a warm-hearted family story that is in the best Disney tradition.

"We're storytellers who happen to use computers," explains director John Lasseter. "Story and characters come first and that is what drives everything we do. You can dazzle an audience with brand-new technology but in the end people walk away from a movie remembering the characters."

This combination of technical wizardry and a relentless pursuit of a compelling story

provided the genesis for the creative partnership between Walt Disney Pictures and Pixar. The two companies worked closely together in the past and shared a special scientific and technical Academy Award® in 1992 for their joint development of CAPS, a computer animation production process, its contribution to "Beauty and the Beast" and to the art of animation as a whole.

The making of "Toy Story" is the culmination of a twenty year dream for Lasseter, as for all of Pixar's founders. "This was the Holy Grail. Who would turn out the first computer-animated feature film?" recalls producer Ralph Guggenheim, who, along with Pixar's executive vice president Dr. Ed Catmull, supervising technical director Dr. William Reeves, and associate technical director Eben Fiske Ostby have been with Pixar since its inception. "Our dream all along had been to make a feature film. Initially, because the technology wasn't advanced enough, it was always a project in the background. But Steve Jobs was willing to fund us while we kept advancing the state of the art," adds Catmull.

In fall 1990, with a string of award-winning computer animated shorts and commercials behind them, the Pixar team felt the time had come to move toward their long cherished goal of making a feature-length CGI animated film. Fortuitously, Walt Disney Feature Animation was looking for ways to diversify its release schedule by experimenting with other forms of animation beyond the traditional two-dimensional cel process. Its first venture, a partnership with Tim Burton and director Henry Selick to create "The Nightmare Before Christmas" using stop-motion animation, had already proved fruitful.

"John Lasseter was a natural for us," recalls Peter Schneider, President of Walt Disney Feature Animation. "We wanted to do a movie with John for a long time and had even tried on numerous occasions to hire him back to Disney." But Lasseter kept resisting their offers insisting that he wanted to stay at Pixar where he had already formed strong ties and had over the years built an able-bodied crew for his short films.

In February 1991, Lasseter pitched an idea to Disney, which eventually led to the signing of a three-picture agreement. The germ of the idea was a single visual image: a toy at a highway rest stop, its family unknowingly leaving it behind. "It's such an emotional thing

because everybody has lost a toy that they wanted so desperately to find, that they wished the toy was looking for them," relates story co-creator Andrew Stanton.

"Toy Story" marks a departure from Disney's animated fairytales. Inspired by classic buddy pictures like "48HRS.," "Midnight Run," and "The Defiant Ones," as well as his own grand affection for toys, Lasseter wanted to make a unique animated comedy-adventure conceived of original material. "This is a genre that no one had really explored in animation before," says the director. "We felt it had great potential in terms of making a strong character film. The whole notion of a buddy picture is that you create two characters who are polar opposites and you put them in a situation where they have to work together and grow. You can see the whole arc of the character's development and that allows for some really great acting."

Having already successfully experimented with the idea of bringing toys to life using computer animation in their Academy Award®-winning short "Tin Toy," Lasseter and his colleagues decided to push the boundaries further by giving their first CGI feature film an all-star toy cast. "The choice of toys was made because we knew it would look great in computer animation. The story would be much more believable, powerful, and interesting looking than if it were done in any other medium," observes Lasseter.

"With this movie we were finally telling a story where we could execute what we've always wished we could see our toys do. The motivating emotion was the desire to believe in your toys," adds Stanton.

From a practical standpoint the new Disney/Pixar partnership allowed each side to draw on the others' strengths. Pixar had amazing technology and a creative team that knew how to use it. Disney understood the importance of good story structure and the process of creating a feature-length animated film better than anyone and had the ability to attract top notch voice, music and writing talent.

One of the earliest and most difficult tasks required Pixar to expand its animation, editing, and post-production staff from 24 people to well over a hundred. To help with this process, Bonnie Arnold, who comes from a live-action film background, joined Ralph Guggenheim as producer. "If short films are sprints, features are marathons, especially in

animation. You wear the same shoes but that's the only similarity. You're talking about a four-year commitment," relates Arnold. "Definitely the hardest thing, logistically, was the staffing. In a live-action filmmaking, it's easy to find cinematographers, editors, art directors who traditionally have done this for a long time. Nobody has ever made a movie of this kind before. At times, I don't think even we understood the depth of that."

It took extraordinary leaps of the imagination and a wealth of resourcefulness for producers Guggenheim and Arnold, along with production supervisor Karen Robert Jackson, supervising technical director Bill Reeves and supervising animator Pete Docter to pull together a cohesive unit and design a full-scale animation studio that met both the artistic and technical demands of this project. "I think it's safe to say that we have more Ph.D.'s. making this film than any other film in history. But by themselves, they can't make a feature film such as this," declares Guggenheim. "This project also boasts an impressive number of artists working at sophisticated computer work stations who have never so much as clicked on a mouse.

"The scope and diversity of talent here is amazing," Guggenheim continues. "From modelers with architectural degrees to a digital painter accustomed to painting scenic backgrounds on huge canvases for the San Francisco Opera, to a computer scientist using her degree in computer generated plants to landscape neighborhoods."

Supervising technical director Reeves, the co-author of Pixar's proprietary software for animation and modeling, led the team in solving the unique set of technical challenges required to make this film. This included huge sets (Andy's neighborhood), humans, and the overwhelming technical glitches one encounters in undertaking a project of this scale.

Under the guidance of supervising animator Pete Docter, and directing animators Rich Quade and Ash Brannon, the animation staff gradually expanded to 27 animators. Most of the animators involved in "Toy Story" came from traditional animation backgrounds -- either hand-drawn, puppet or clay animation. They were chosen for this project based on their acting ability and flare for personality-driven character animation.

To gear up for their first feature-length production, Pixar's staff went through several

important stages of preparation. Proprietary software was written and refined to meet the technical challenges of the film while the animation team honed their performance skills by studying acting, mime, life drawing and storytelling techniques. In order to make the toys seem like living, breathing characters, anatomy, movement and expression were carefully researched and experimented with. "When we look for character animators, we look for actors, people who can make a character come alive," explains producer Ralph Guggenheim.

"The quality of acting in 'Toy Story' makes you believe the toys are real," adds Peter Schneider. "People have a predisposition to believe in their toys. All we're doing is saying their fantasies are correct."

"Toy Story" is unique in that it lives solely within the high-tech realm of computers. None of the characters, elaborate sets, or simple props have ever been touched with a human hand, a pencil or even a paintbrush. Yet the created world is warm and tangible. With 77 minutes of computer animation, 1,561 shots and a cast of 76 characters that includes humans, toys and a dog, the artists involved in "Toy Story" have blazed a new trail in a brand new medium. "It's a breakthrough -- a milestone that will go down as a landmark in motion picture history," predicts Steven Jobs, Pixar's owner and chairman.

"One of the great things about computer animation, is that every step of the way you see something new," adds Lasseter. "I feel lucky to be able to come to work every day and look at things and say 'Oh my, look at that. That's amazing'."

THE STORY: EVERYBODY IS AN AUTHORITY ON TOYS

Put four grown adults in a room and ask them to reminisce about their childhood and the toys they played with and you won't find much resistance. In fact, a more likely scenario is that they'll regress to a point where it would be hard to imagine they ever stopped being kids. The truth is, they didn't.

The process of developing the story was led by director John Lasseter, story co-creators Joe Ranft and Andrew Stanton, and supervising animator Pete Docter. The head creative team from Walt Disney Feature Animation, which included president Peter Schneider, executive vice president Thomas Schumacher and special projects vice president Kathleen Gavin, played an important collaborative role in the development of the script and provided creative input throughout the production. Screenwriter Joss Whedon was brought aboard to fine-tune and polish an early version of the script.

For several months in 1991, the Pixar story team held brainstorming sessions in a tiny room code-named "The Point" at the far end of the Tech building in Point Richmond, California. With no phones and a blank canvas, the team delved nostalgically into their childhood, sketching ideas and scenarios that would eventually amount to more than 25,000 storyboards.

"Everybody is an authority on their childhood and their toys. On that level this was an easy film to write," relates Stanton. "The way we work in the creation process is we completely ignore the medium we are writing for because it handcuffs us. Any technological achievements we've made in this medium came after we already committed to the storyline."

Once the story team committed to the premise of a buddy picture starring toys, its foremost task was the conception of its two leading characters. The group initially envisioned using a wooden Charlie McCarthy-type ventriloquist's dummy and the musical wind-up toy Tinny, the star of Pixar's Academy Award®-winning short "Tin Toy," as the film's opposing characters.

"We knew we wanted an old toy and a new toy," Lasseter recalls. "The initial idea was that the dummy was a hand-me-down that Andy had gotten from his father, and then on his birthday he gets Tinny as a new toy. But as the story evolved it became clear that Tinny was too antiquated. So we started to analyze what a little boy would get these days that would make him so excited that he stopped playing with everything else. I have four boys of my own so it wasn't hard to imagine."

"Buzz Lightyear represents whatever cool flashy toy you owned at one time. Woody represents whatever worn out doll nobody else would want but you had an affection for,"

continues Lasseter, whose own pull-string Casper doll served as inspiration for Woody.

Lasseter immediately latched on to the idea of a G.I. Joe type action-figure (his favorite as a child) and from that emerged the idea of a space superhero. "It's kind of a combination of G.I. Joe and 'Star Wars,'" says Lasseter. But once the spaceman was introduced, the story team changed tack. "Since it was a buddy picture we wanted the dummy to be the complete opposite of a space toy so we made him a cowboy. They were a great complement to each other -- the old frontier and the new frontier," Stanton adds.

Finding suitable names for the two lead characters was the next challenge. "We started with Lunar Larry and much sillier names," recalls Lasseter. "We were thinking of all these things in outer space and lightyear came up, and then we thought of astronaut Buzz Aldrin. The next thing you know we had Buzz Lightyear. It was such a perfect name for him, and so much of his personality grew out of that name." The name Woody was inspired in part by Woody Strode, the actor best known for his roles in John Ford westerns.

From the onset, Lasseter wanted to cast Tom Hanks in the role of Woody. "I had just seen the film 'A League of Their Own,' and what I loved about Tom was his ability to make all kinds of emotions appealing. Even when he's yelling at somebody, he's likable. That was crucial because Woody behaves pretty badly when he's not head toy anymore," Lasseter explains.

To help get Hanks enthused about the role, Lasseter had Rich Quade do an animation test with Woody, using Hanks' voice from the "Turner & Hooch" soundtrack. The dialogue for the test lasted only four seconds -- long enough, however, to win the actor's approval. Recalls Hanks, "The dialogue was 'Not the car. Don't eat the car. Not the car.' And Woody was just flailing in hysterics. His little fists were pounding all over the place. He dropped to his knees and was pounding the ground. It was really amazing."

Hanks' comic gifts brought an added dimension to the character, especially when it came to expressing Woody's uniquely sarcastic personality. "On the surface Woody's very loose, very relaxed about everything. He sees himself as Mr. Nice Guy. But underneath he's thinking, who's my competition and what do I have to do to stay on top?" explains supervising

animator Pete Docter.

Defining the persona of Buzz Lightyear proved more difficult, although once Tim Allen was cast Buzz's personality blossomed. At first, Lasseter and his staff envisioned Buzz as a Dudley Do-Right kind of superhero, but after their first recording session with Allen their perspective shifted. "We were all inspired by Tim's character on 'Home Improvement'," recalls Lasseter. "After our first recording session we analyzed the dialogue, and realized that what Tim's perfect at doing is the everyday guy. He gave us that quality we wanted of a macho guy with a soft underbelly. So instead of making Buzz aware of being a superhero, we made him more like a really good well-trained cop."

For the supporting characters, the team decided to use existing toys, mixed in with those invented for the film. It gave the story a reality and sense of nostalgia. A prerequisite for the inclusion of existing toys was that they stood the test of time. "We didn't want to look back in 10 years and see that nobody knew what those toys were," says Stanton. "So we used only the classics, like Mr. Potato Head™, Slinky Dog™, Etch-A-Sketch, Green Army Men, Magic-8-Ball and Barrel of Monkeys."

On the urging of Disney, the writers worked hard to give their story an edge, rather than making it seem juvenile. Consequently, when toys came alive they acted like adults doing their jobs. Andy's room was their work place, and when Andy wasn't around a set of rules existed.

"You have company men, those questioning authority, the insecure types who know they might be laid off, and climbers seeking that next promotion," remarks Lasseter. "This bedroom is a little urban microcosm. It's a melting pot that isn't so melted. It's got toys of different plastics and colors and sizes and recommended age groups all doing their jobs together and living on top of one another. So they get a little testy at times."

The key to defining a toy's personality was to derive their traits from the realities of their construction, respecting what Lasseter calls the "physical integrity" of the object. How is the toy made? What was it built to do? What materials are used? Where was it manufactured? What are its physical limitations?

"What I love most about computer animation is giving life to inanimate objects, showing

an audience a familiar world and then inspiring them to view that world with a totally new perspective," reveals Lasseter. "A toy is made to be played with by a child and that is what they like best. So what they fear most are things that prevent them from being played with: being broken, lost, stolen, replaced by a newer toy or being outgrown. That is where so much of the toy's personality comes from."

Mr. Potato Head™ is a cynical spud (with removable parts) who is the first to let off steam when things don't go exactly as they should. Woody is a favorite target for this hot-headed character who is always coming apart at the seams. "You'd have a chip on your shoulders too if your facial features kept falling off all day," Lasseter explains. Who better to portray this natural malcontent than actor Don Rickles.

Lasseter and Thomas Schumacher, executive vice president of Walt Disney Feature Animation, paid Rickles a personal visit hoping to convince the actor to take the role. "I brought along a Mr. Potato Head™ as a gift, but as I handed it to him, I accidentally knocked off the hat," Lasseter muses. "Don was standing there holding Mr. Potato Head™ and they both had this bald head, and it looked just like him. I thought, this is perfect casting." To this day, a Mr. Potato Head™ autographed by Rickles sits prominently on Lasseter's office desk.

Actor Wallace Shawn, who won the hearts of moviegoers in "The Princess Bride" is the voice behind Rex. Even though he's molded after the most ferocious beast in history, Rex has the gentlest heart of all the toys. Neurotic, nervous, sensitive and insecure, Rex is a 12-inch plastic dinosaur, who has never been quite comfortable with the role in which he's been "cast."

"Part of Rex's personality came from taking what they did in 'Jurassic Park' and putting a funny spin on it," Lasseter remarks. "We certainly had the ability to animate him with all the articulation a real beast would have, but he's a rigid plastic toy with weak, cheesy little arms. So when his legs move, they only move around the given rotation points that are manufactured into him. When he turns his head, the whole head top rotates, because there's a seam around his neck. And as soon as he does that, the spray-paint markings don't line up anymore so he's as unconvincing to see as he is to hear."

John Ratzenberger, widely known as mailman Cliff Clavin on the long-running hit TV

series "Cheers," is the voice of Hamm, the pigheaded piggy bank who thinks he knows it all and doesn't mind poking his snout into the other toys' business.

Jim Varney is Slinky Dog™, a collapsible canine with a springy midsection that expands and contracts with each movement. He's one of the veteran toys in Andy's room and his friendship with Woody stretches back a long time. With his down-home country drawl and easy going manner, Slinky Dog™ is a faithful pal, but the arrival of Buzz finds him bent out of shape and puts an old friendship to the test.

Devising creative scenarios for Andy and Sid came naturally to the story team; they are in effect, these characters. "John Lasseter is Andy," declares story co-creator Joe Ranft, who admits he was more like Sid. "All of John's toys were well taken care of and in perfect condition. He still has them in little display cases in his office."

"Sid started out essentially as a surrogate for us to regress to being 10-year-olds," says Lasseter. "We took what we knew about setting off cherry bombs and bugging our little sisters and all the stuff we did to our toys as kids, and rolled it into one character." In fact, Combat Carl's death scene is a near reenactment of something story co-creator Andrew Stanton once did to his G.I. Joe action figure. "We made an M-80 into a little backpack for him," laughs Stanton. Lasseter loved the story and used it to introduce Sid in the film.

The mutant toys are an odd-looking bunch of hybrids that are the product of Sid's playtime. These unfortunate creations are pure and gentle at the core despite their outward appearances. Survival is the key to their existence and unlike most toys, this group does not want to be played with -- especially by Sid.

Producer Bonnie Arnold likens the story process to that of peeling an onion. "Every time you peel away one layer, a whole new set of concerns arise." At one point in the development of the story, Lasseter and his team realized that somewhere along the line, they had lost the pure, childlike feeling and emotion that had propelled the story in the first place.

"The bond Woody feels with Andy had to be the first thing we got across in the movie. It had to be immediately tangible, or you wouldn't care when something came along and upset it," Lasseter reveals.

BRINGING THE CHARACTERS TO LIFE

If one were making a comparison between computer animated features and live-action films, it would be appropriate to say that the technical scientists are the crew and the animators are the actors. "The definition of character animation to me is the *thinking character*. Every single movement a character makes should seem like it's generated by its own thought process," explains director Lasseter.

Once the story is locked and edited to story reels, the cameras set and the action blocked, it is the animator's job to breathe life into the characters. The animation of all the characters is accomplished using animation controls or "avars" built into the models, much like the strings on a marionette. Supervising technical director Bill Reeves gave Woody more than 700 animation controls when he modeled him; 212 controls just in Woody's face alone.

"Woody may only be a toy, but he had to be our main emotional guide," observes Reeves. "That's a pretty big requirement. He had to have facial expressions as seemingly human as a live-action actor. And he had to be able to demonstrate every emotion under the sun. It isn't enough just to give the character anatomy. You've got to give it acting power." In one scene alone, Woody needed to be able to express a wide range of emotions including fear, regret, frustration and resolve.

Pixar's software is specially designed to be used by computer-naive animators. In fact, the majority of animators on "Toy Story" had no computer training before working on this film. They came from traditional animation backgrounds including cel (hand-drawn), clay and stop-motion animation.

Unlike traditional Disney animation, animators working on "Toy Story" shared animation duties on all the characters focusing on entire shots (which typically ranged from 3 to 7 seconds) rather than on single characters. Animation dailies were a spirited and open forum for critiquing shots and kept everybody aware of what everybody else was doing.

Explains Lasseter, "I would try and paint into their minds the emotion and environment of the shot, but as to how they do it, that's why we hired them. I wanted all of our artists to have some creative ownership of the film because I remember how it was when I was working on bigger projects as an animator. I always worked harder, and did much better work, when I felt I had a part in the creativity."

While animators shared duties on all the characters, a few artists demonstrated a flair for animating certain types of shots. Often, it reflected the persona of the animator. Doug Sweetland was assigned to animate many of Woody's more manic outbursts because he is a bit hyperactive himself. Directing animator Rich Quade, who is more laid-back, was assigned many of Woody and Buzz's quieter emotional moments.

To figure out how best to choreograph Woody's movements, the animators studied footage of loose-limbed actor Ray Bolger (the scarecrow in "The Wizard of Oz") and referenced videotapes of Tom Hanks reading his lines. Supervising animator Pete Docter also found his ragdoll puppet and desk mirror invaluable tools for determining subtle facial nuances and overall body language. According to Lasseter, "The eyes more than anything else give life to a toy. The angle of a blink, how far the pupils go off to the side when a character is trying to peek at something without being noticed, conveys a sense of presence better than any other element."

The animators took a different approach with Buzz since his movements had to be stiff and methodical; after all, he is made of plastic. Modeler Eben Ostby instilled nearly 800 animation controls in Buzz. "The visual shorthand was 'think klutzy curves' for Woody; 'think athletic angles' for Buzz," Ostby says.

One of the most challenging and visually rewarding sequences for the animators involved the little green army men on a reconnaissance mission at Andy's birthday party. To get a feel for how army men would move with their legs permanently stuck to plastic bases, supervising animator Pete Docter nailed a pair of old running shoes to a piece of plywood. Docter and his dedicated corp of artists took turns hopping around the animation area studying each other's awkward steps. "It gave us some idea about where your energy goes when you

can't move your feet, and how your hips would move relative to a base if you had one," explains Docter. Lee Ermey, the real-life drill instructor from Stanley Kubrick's "Full Metal Jacket," provided the lead sergeant's voice for this sequence.

The filmmakers held two recording sessions with Hanks and Allen together "which sparked a terrific chemistry and helped establish the fundamental relationship between Woody and Buzz," says Lasseter. But logistics and scheduling constraints meant doing most of the sessions solo.

"It's much harder than I ever imagined it would be. My joke is that I come in four or five hours and they just work me 'til I drop. Woody yells a lot so I have to have a lot of energy," Hanks comments about his animation debut. "It's a test of every aspect of the actors tool box. You're standing there in place but you have to embody the physicality of what the character is going through. And Woody gets dragged behind cars and everything, so by the end of a session I feel like I've been dragged behind a car. It's tough."

Lasseter notes that his actors gave him the best material when he simply painted the emotion and environment of a scene and left leeway for improvisation. "I never said to Tom Hanks 'read the scene like this.' I'd say 'you're in the back of a moving truck, it's really noisy out, all these other toys are trying to get you, and you're trying to tell Buzz that everything is okay'."

To help with this process, Disney suggested giving the actors props to help them feel more like they were on a live-action set. "It was a nice change of pace," remarks Allen, adding that "On 'The Santa Clause,' the director was always yelling to keep the kids away from the toys."

"We got Tom a cowboy hat and various other props which really helped him get into Woody's character," says Lasseter. In one very amusing moment, Hanks used a rubber arm belonging to Lasseter's son and mugged his way through a string of ad-libs that had the filmmakers in near hysterics. Recalls Lasseter, "Tom was doing a scene in which Woody was trying to convince the other toys that Buzz was still alive, so he takes Buzz's severed arm and does a pantomime with it. But Tom started doing this puppet show, acting like Buzz Lightyear,

followed by a palm reading, a fake back massage and a cuticle manicure."

"It's amazing to see what the animators have done," comments producer Bonnie Arnold. "We already had the designs for Buzz and Woody done long before Tom Hanks and Tim Allen were cast, but its amazing how once we brought in the voices, the characters would start to look like Tom and Tim. The model stays the same but the animators start to adopt their mannerisms."

Animator Glenn McQueen agrees, adding, "A line reading from Tom Hanks is like getting this big, incredibly wet sponge. It's overflowing with different possibilities for you to wring out."

THE ART DIRECTION: CREATING A CARICATURED WORLD

Art director Ralph Eggleston ("Fergully...The Last Rainforest") set out to create a "heightened reality" look for "Toy Story" with an emphasis on believability. The result is a caricatured world where the designs are stylized but the textures are very realistic.

Among the key sets that Eggleston and his art department designed are the contrasting worlds (bedrooms) of Andy and his twisted neighbor, Sid; the space-age motif of "Pizza Planet" and the moon-lit Dinoco Gas Station where Buzz and Woody join forces to find their owner, Andy.

"Toy Story" marks Eggleston's introduction into the world of computer animation, an astounding feat given the highly technical challenges he had to contend with. But Lasseter was impressed by Eggleston's "great color sense and his ability to make designs dimensional." After lengthy discussions with the director, Eggleston designed a pastel color script of the film's 28 major sequences, sketching out dominant hues, mood and lighting for each scene. Paintings by Maxfield Parrish, rich in saturated colors and strong contrasts served as inspiration.

Eggleston cites two major sequences in his color script as pivotal to the film: The

moment when Woody tries to get rid of Buzz and inadvertently knocks him out the window. And later, their reconciliation in Sid's chambers as they await execution.

"When Buzz falls out the window, there's bright orange light coming through the window that's very dramatic. Everything is bathed in a warm, red glow," describes Eggleston. "Then, Woody and Buzz begin their journey into darkness. It's overcast and stormy, very blue and cold, almost funereal. The sun doesn't really come out again, until they come to grips with who they are."

Andy's bedroom was conceived as a refuge -- a safe and comfortable environment in which the toys can spring to life. It is flooded with sun and warm pastels. The blue wallpaper with its soft clouds is inviting, "It gives one the feeling of being underwater," according to Eggleston. In contrast, Sid's bedroom is a horrific torture chamber for toys complete with black light posters and a rusty barbed wire bed without any comfy blankets or sheets to sleep on. It is lit by a single, unshaded bulb hanging over Sid's desk.

Eggleston worked closely with visual designers Bob Pauley and Bill Cone, and digital painters Tia Kratter and Robin Cooper to create a world with a sense of a past. From dirt on the baseboards and scratches on the floor in Andy's bedroom to a dresser filled with dirty clothes in Sid's house, the artists paid meticulous attention to detail.

"Ralph Eggleston understands the life cycles of a vast range of physical objects," says shader and visual effects lead Tom Porter. "He's good at imagining how things age and how they wear. He's got a case history in his head for every nail in the floor." Porter works in tandem with the paint department, applying "shaders" (computer programs for describing surface appearance including color, texture and reflectivity) to the surfaces of objects.

"Our job is to take things that are computer perfect and mess them up," elaborates digital painter Kratter. "Sid's desk, for example, has blotches, paint splats, scrapes, spills, chips, sprays, cup rings, holes, dirt and watermarks. In fact, we have a whole directory for filth," Kratter laughs.

The childlike posters on the walls in Andy's room were painted by the art department, as were the intricate designs on the mobile hanging from a crib in Andy's sister's room. The same

is true of the dirt Woody and Buzz accumulate over the course of the movie. It is not surprising that a box of crayons with as many colors as the art department has access to would cover about three city blocks and weigh 5,000 tons.

Bar none, the greatest technical challenge for the art department, as for everyone, was creating believable human characters. "For the humans, I didn't want to attempt super-realism, because we'd fail," says Lasseter. "I didn't want to make them overly simplified, because they'd wind up looking too much like the toys. The approach had to fall somewhere between cartoonish and real."

Because of the organic qualities of hair, skin, and clothing, human characters are among the most difficult objects to make convincing using computer-generated images. The human skin is one of the more complex surface appearances. Up to 10 separate "texture maps" are applied to each patch of skin, controlling such details as freckles, blushing, facial hair, oil layers and wrinkles.

Clothing, with its precise wrinkles and creases, presented even greater obstacles for the modeling, shading and art departments. Entire photo albums of Pixar employees modeling their faded denims in every conceivable position were collected as reference.

"Computers still deal best with stiff, shiny objects. We can make those look utterly real," Lasseter says. "But as soon as you attempt natural fiber, that's a quantum leap in visual complexity. The softer it is the tougher it is to model and animate and give it a texture." A prop as seemingly simple as Sid's backpack needed a staggering 128 animation controls.

THE MUSIC

Music serves a unique role in "Toy Story." Unlike traditional Disney animated musicals where characters break into song, the songs here play over the action to support the emotional moments of the film. "We use music in the same way that Simon and Garfunkel did so successfully with 'The Graduate' and Disney did so memorably in 'Dumbo' with 'Baby Mine.'" In

both cases, the music amplifies the emotional underpinnings of the scenes," says Lasseter.

Grammy Award-winning composer/songwriter Randy Newman ("Avalon," "The Natural," "Ragtime"), has created three original songs for "Toy Story" as well as the richly textured and evocative underscore. The songs which he wrote and performs are: "You've Got a Friend in Me," "Strange Things" and "I Will Go Sailing No More." Over the end credits, "You've Got a Friend in Me" is reprised as a duet between Newman and Lyle Lovett.

"Randy has the ideal combination of emotion and irony; a certain playfulness that really matched our story," says producer Ralph Guggenheim. "Half of his songs are extremely sarcastic and very pithy, and the other half are the most romantic you've ever heard, and he can go back and forth between the two."

Working closely with Disney's executive music producer Chris Montan, Newman was brought aboard early in the process. "The one great thing a composer can do in animation is he can lead us as much as respond to us," notes Montan. "We looked to Randy to show us through his viewpoint how these characters could move us."

"The songs became the one place in the film where Woody and Buzz really manifest their feelings explicitly. It's where they voice stuff they don't otherwise admit to people, or even to each other," reveals Newman.

Newman describes his first song, "You've Got a Friend in Me" as having a "comfy homey sound" -- a playful "New Orleans shuffle" spiked with a little western flavor. "This song speaks volumes about the love between Andy and Woody, better than we could ever tell it in dialogue," offers storyman Andrew Stanton.

The song "Strange Things" is rock-and-roll, a phantasmagoria of bad things happening to Woody as his status as Andy's favorite toy evaporates. "I Will Go Sailing No More," is more a lamenting ballad that conveys the dejection and defeat Buzz feels when he learns his true status as a toy.

At the Sony sound stages in Culver City, Newman conducted a 97-piece classical orchestra for the film's underscore. "People often tend to put a synthesized score to computer graphics, but I wanted to have a traditional orchestral score with a rich full sound," says

Lasseter. "There is much more humanity in the finished picture than I anticipated," confides Newman. "I don't think I could have ruined the appeal of this film with six Casios and a nose flute."

THE GIANT PIPELINE -- BUILDING A WORLD INSIDE A COMPUTER

Every creature, toy, prop and setting in "Toy Story" exists in virtual space. Everything! From a pelting rainstorm to a beautiful sunset, a blade of grass to the 1.2 million leaves on the trees in Andy's neighborhood, the telephone poles, the gravel sidewalks, the flicker of a burning match.

The process of computer animation is similar and, at the same time, very different from traditional animation. There are ten basic stages to creating each textured image: storyboards, editorial, production design, modeling, layout, animation, shading, lighting, rendering, and film recording. "It's like a giant animation factory," explains production supervisor Karen Robert Jackson. "Every frame must be approved in one stage before it can move down the pipeline to the next."

Like other animated films, artists begin with hand-drawn storyboards and then cut them together into story reels, putting actors' dialogue or scratch dialogue up against them. The story reels evolve into a patchwork quilt of storyboard drawings, pencil tests or intermediary polygons, as well as final rendered imagery. Since most of Pixar's work is done digitally on various computers, editors Robert Gordon and Lee Unkrich found video the most convenient medium to work in at this stage of the process.

Once the story reels are approved, they go to the art department, where art director Ralph Eggleston determines the overall lighting and color scheme for each sequence. "The art direction has got to support the story; set the mood of the scene with color and lighting. It's like painting with lights," says Eggleston.

All animated objects and characters are "modeled" in three dimensions within the

computer to create a complete 3-D description of their shape. In all, some 2,000 models had to be crafted for "Toy Story." Most character models have an underlying skeleton that allow fully articulated motion of joints and limbs. "Modelers are like digital-age marionette makers. We attach hundreds of interconnected strings that the animators can manipulate," explains animation scientist and modeler Eben Ostby. There are 800 separate "avars" (animation controls) on Buzz. For some of the more organic characters (anything involving skin), clay sculptures were built and then digitally scanned into the computer.

Sets and furnishings are modeled with computer-aided design systems. "Model packets," similar to an architect's blueprint, take into account the size and shape of every object in relation to everything else in the created world. "To our way of thinking, we build real sets," explains modeler Damir Frkovic. "They just happen to exist in virtual space instead of physical space. You've got to keep that live-action outlook in your head if you want this to look like an actual working place, and not some perfect hermetically sealed illustration."

The layout department is responsible for the basic blocking of scenes and formulation of camera moves. "If you took a live-action director of photography and sawed him in half, we'd be the part that worries about the cameras," comments supervising layout artist Craig Good. "We do camera moves that could happen in real life with real cameras -- everything from close-up, medium and wide shots, to tracking shots using dollies and cranes." Except in the world of computer animation there are no real cameras, only simulated cameras that have virtually no restraints. But Good says he and lead layout artist Ewan Johnson followed established film grammar and avoided computer graphic gimmicks such as "delirious flybys" and "infinite tunnel shots."

"We hate these camera moves where you go flying off through space that makes everyone in the audience reach for their Dramamine," adds Good. "We're trying to do something different and better than what is traditionally done in computer graphics. The problem is, up until the last few years only people with Ph.Ds could run the software. It was like having paintings done by the chemists who mix the paint."

The layout team deliberately borrowed shots from live-action directors, naming their

cameras accordingly. "We have a Branagh-cam shot for the way the camera circled around in 'Frankenstein,'" observes Good. "It's a point in the film where the other toys think that Woody has deliberately pushed Buzz out the window and they all attack him. We also have the Michael Mann-cam, for the kind of shots he did in 'Miami Vice,' where he'd lock a camera on the spinning wheels of a Corvette. In one scene we have a tanker truck that pulls into the gas station, and there's a camera locked to the truck, looking past the big wheels that are rotating in the frame, while Woody's lying on the ground."

When animators receive a shot from layout, the shapes are represented by rough polygon shapes (polys) or by wire-frame figures. This simplified view of the character allows the computer to work faster and the animator to focus solely on the acting. "All you're left with to get across your meaning is movement and timing, which is fine, because that's the essence of animation," says directing animator Rich Quade.

Once a shot is animated, it goes into shading, lighting and finally full color rendering, where it is imbued with shadows and gorgeous lighting effects. "Shaders" are mathematical computer programs for describing surface appearance: color, texture, reflectivity and bumpiness. For example, there is a brass shader, a hardwood floor shader, and an Andy's-room-wallpaper shader. The purpose of each shader is to inform the renderer about how various surfaces reflect light. The paint department then takes these computer-perfect surfaces and gives them wear and tear, dirt and grime.

Many surface appearances are best described in the computer using pictures. The decals on Buzz for example, include graphics designed by the art department. The weave of the comforter on Andy's bed is actually created by scanning a piece of real cloth. And the hallway carpet in Sid's house is lifted right out of the thriller, "The Shining." Each of these images is used as a "texture map." More than 2,000 of these maps were painted for "Toy Story."

The most dramatic visual transformation of a shot occurs in final lighting. It is here that the lighting crew paints the mood and ambiance of a shot using every imaginable lighting-source that a live-action filmmaking crew might use -- including the sun and the moon.

"Except we can make our sun come out whenever we want it to," says lighting supervisor Galyn Susman. Nor does the lighting crew have to contend with heavy equipment, power plugs or gels. Everything is controlled with a computerized menu system.

"We have key-lights, back-light and rim lights," adds lighting supervisor Sharon Calahan. "We can put our shadows anywhere we want them, and we even have the ability to isolate lights to shine only on a particular character or object. In one shot, we have five lights shining just on Mr. Potato Head's™ ear."

"We've never done lighting like this before," says supervising technical director Bill Reeves. "The typical computer graphics scene uses diffuse, office light or has spotlights bouncing everywhere. We have dramatic moody lights in Sid's room, lens flares, flashlights and bright sun. In one sequence we have a rainstorm with dark gray skies. A few shots later, light streams through the window."

The process of creating the final detail and color of an image is called rendering. It involves collecting and combining data pertaining to each image. The computer assigned to render a frame starts by collecting a complete scene description, including the shape of all objects (models), their poses (animation), surface descriptions (shaders) and lighting. The computer then computes the final images by determining the color of the object visible at each pixel. It took over 800,000 plus machine hours to render final elements using Sun SPARCstation processors -- running 24-hours-a-day in a special room appropriately named the "Sun Farm."

The final step in the process is the recording of these images onto film.

PIXAR -- THE LEADING FORCE IN COMPUTER ANIMATION

Pixar was founded in 1979 as the Computer Division of Lucasfilm, Ltd. George Lucas recruited Dr. Ed Catmull, then director of the Computer Graphics Laboratory at the New York Institute of Technology, to develop state-of-the-art computer technology for the film industry.

Dr. Catmull's group -- which included Ralph Guggenheim and director/ animator John Lasseter and William Reeves -- went on to produce computer animation sequences for "Star Trek II: The Wrath of Khan," "The Return of the Jedi" and "Young Sherlock Holmes." In 1986, Steven Jobs acquired Pixar and it was incorporated as an independent company.

Quickly establishing itself as an award-winning digital animation studio, Pixar has been responsible for almost every major breakthrough in the application of computer graphics to filmmaking. In recognition of its pioneering work in computer animation, the company and its employees have to date been awarded 12 Academy Awards®, including an Oscar in 1989 for "Tin Toy," which was chosen as the year's best animated short film. In the area of TV commercials, Pixar has twice received the advertising industry's highest award (the Golden Clio) for its work on commercials for Listerine ("Arrows") and Lifesavers ("Conga").

Pixar's relationship with The Walt Disney Company dates back to 1987, when the two companies embarked on a joint technical development effort that resulted in CAPS (Computer Animated Production System), the Academy Award®-winning 2-D computer animation production system. Disney first experimented with CAPS for a scene in "The Little Mermaid" and has gone on to use the system for all of its subsequent animated features. In 1992, Disney and Pixar shared the Scientific and Technical Achievement Award at the Oscars for its joint development of this revolutionary post-production system. Expanding upon their creative partnership on CAPS, Disney and Pixar entered into a three-picture production deal in 1991 with "Toy Story" being the first film to be green-lighted.

Located in Point Richmond, California, Pixar today has over 150 employees. The company's divisions include: Feature Animation, Television Commercials, CD-ROMs and Software Products. Over the past several years, a number of Pixar's rendering software products have become commercially available and are now the industry standard. The best known is RenderMan®, which is the Academy Award®-winning computer technology used by motion picture and television studios to create realistic special effects. This software package has allowed design studios to create landmark visual effects such as the water creature in "The Abyss," the metal cyborg in "Terminator 2: Judgment Day" and the dinosaurs in "Jurassic

Park."

In October, 1995 Pixar announced its proposal for an IPO (initial public offering), which is now being reviewed by the Securities and Exchange Commission.

TO INFINITY AND BEYOND: WHAT DOES THE FUTURE HOLD?

The completion of "Toy Story" is certainly a landmark in the world of computer animation, but Lasseter says this is only the beginning. "I've always been inspired by the new developments in computer graphics. When I see something, it's not that I'm wowed by what I'm seeing, I'm wowed by the potential of what I'm seeing. This medium is brand new, and what's exciting about it is that it's ever-changing and it's really amazing to be a pioneer."

"The power of a work station that we put on a person's desk these days, you couldn't buy that machine ten years ago, and you certainly couldn't buy a hundred of them like we have here at Pixar," adds supervising technical director Bill Reeves. "It's only been in the last few years that the computers have become accessible and affordable, and the software has increased to the point that we can do something rich enough, complex enough and interesting enough to engage an audience for a 77-minute film."

Producer Ralph Guggenheim agrees adding, "This film expands the canvas that exists for what animated films can look like. A lot of people think computer animation will make other forms of animation obsolete, but frankly for a long time there's been a variety of techniques of animation: clay animation, sand animation, stop-motion and puppet-animation. Those forms will always exist. This just broadens the horizon of what can be done. The interesting thing about computer animation, though, is that where all those other techniques are locked into a fairly constrained look, this is an area of animation where the look has yet to be really defined. The sandbox that you can play with is bigger than any of these other techniques in terms of the things you can do with it. We're just scratching the surface and that's what is exciting."

TECH TALK: A GLOSSARY OF COMPUTER ANIMATION TERMS:

MODELING:

All objects and characters are "modeled" in three dimensions within the computer to create a complete 3-D description of their shape. Sets and furnishings are modeled with computer-aided design systems. Characters are modeled not just to describe their shape, but the movement of those shapes as well. This allows them to flex, stretch and bend. Most characters have an underlying skeleton to allow fully-articulated motion of joints and limbs.

AVARS:

These are "articulated variables" within a model which can be controlled by an animator. For example, the angle at which Buzz bends his right elbow is one of several thousand avars created for the models in "Toy Story."

DIGITIZE:

All models are entered into the system through computer-aided design software. For more complicated models (such as human faces), actual clay sculpts were created and then "3-D-scanned" or "digitized" to convert them into computer-readable models.

PIXEL (ABBREVIATION FOR PICTURE ELEMENT):

All images for "Toy Story" are created and stored digitally. They are stored as a rectangular array of "pixels" (or picture elements), with each containing the color of the image at that point. Each finished frame of film requires 5MB (megabytes) of storage. On the average movie

screen, a pixel is a square roughly 1/4 inch per side.

RESOLUTION:

The resolution of a digital image refers to the number of pixels stored. For "Toy Story," the resolution is typically 1536 x 922 pixels.

RENDERING:

The process of creating the final detail and color of an image. This involves collecting and combining data pertaining to each image. The computer assigned to render a frame starts by collecting scene description, including the shape of all the objects (models), their poses (animation), surface descriptions (shaders) and lighting. The final image is then computed by determining the color of the object visible at each pixel.

SHADERS:

These are computer programs for describing or defining surface appearance (such as brass, hardwood, wallpaper patterns). Shaders include information about color, texture, reflectivity and bumpiness. Each shader informs the renderer as to how the various surfaces will reflect light.

TEXTURE MAPS:

Many surface appearances are best described using pictures or images (which can be scanned in or painted). For example, the decals on Buzz include graphics designed in the art department. The curtain fabric in Andy's room was created by scanning a piece of real cloth. The dirt on Sid's desk is also painted. Each of these images is a texture map which is incorporated into the overall surface shader to control the color, reflectivity and bumpiness of the surface. A texture map is a component of a shader.

UNWRAP:

Much like unwrapping a birthday present and flattening the paper onto a flat surface. Pixar's art department uses a computer painting system to create texture maps and background images. Some texture maps are painted as flat images (or "flats") and projected onto a surface. Others are painted directly onto views of the three-dimensional surface.

"TOY STORY" TRIVIA AND FASCINATING FACTS

TECHNICAL ACCOMPLISHMENTS:

- Final frame count: 110,064 frames of computer animation
- Final shot count: 1,561
- Number of models used: Over 400
- Machine hours needed: Over 800,000 to render final elements
- Maximum weekly output: 3.5 minutes of completed animation

PULLING "WOODY'S" STRINGS:

- Woody is described by 52,865 lines of model program.
- He has 712 "avars" (animation controls) -- 212 in his face including 58 in his mouth alone.
- There are 15 shaders and 26 texture maps on this character.

THE BUZZ ON "BUZZ":

- He is described by 34,864 lines of model program.
- There are 700 separate "avars" on the character.
- He has 10 built-in lights.
- Number of separate texture maps: 189 (plus an additional 450 to show scuffs and

dirt)

MODELING:

- A team of 22 technical directors (TD's) were responsible for creating the film's 400+ models (which includes 76 characters).
- All the models in the film comprise 4.5 million lines of code or 270 megabytes.

SHADERS:

- A total of 1300 shaders were written for the production.
- Approximately 2000 texture maps were created for the film. Most are painted digitally, but some are photographed and scanned.
- The shader for Andy's hair took the longest time to write: 9 months
- There are 32 different buildings designed for the film (not including the 3-D Walt Disney castle logo in the opening shot).

LIGHTING:

- Largest number of lights in any shot: 32
- Most obscure lighting effect: Mr. Potato Head's ears have five individual lights that shine just on them.
- Special controls were used to place reflections on Bo Peep's glazed surfaces and Buzz's helmet.

RENDERING:

- Total storage required for all final frames: 500 gigabytes
- Total storage required for all film information: 1 terabyte (or 1 trillion bytes).
- Rendering an individual frame of film could take anywhere from 45 minutes up to 20 hours to complete.
- The 110 computers in Pixar's Renderfarm operate on a 24-hour basis.

CAMERA:

- With all the state-of-the-art technology that was used to produce "Toy Story," the camera used to shoot pencil tests for the animation was a 1912 Mitchell that was originally used in the production of silent films.

THE FILMMAKERS:

JOHN LASSETER (Director), an Academy Award®-winning director and animator, is vice president of creative development at Pixar and the guiding force behind "Toy Story." He has written and directed a number of short films and television commercials at Pixar, including "Luxo Jr." (a 1986 Oscar nominee), "Red's Dream" (1987), "Tin Toy," which won the 1989 Academy Award® for Best Animated Short Film, and "KnickKnack" (1989). Among his other big screen credits, Lasseter also designed and animated the stained glass knight in the 1985 Steven Spielberg production, "Young Sherlock Holmes."

Lasseter was born in Hollywood and grew up in Whittier, California. His mother was an art teacher, and as early as his freshman year in high school, he fell in love with cartoons and the art of animation. While still in high school, he wrote to The Walt Disney Studios about his passion and he began studying art and learning how to draw human and animal figures. At that time, Disney was setting up an animation program at CalArts, a center for studying art, design and photography, and Lasseter became the second student to be accepted into their start-up program. He spent four years at CalArts and both of the animated films he made during that time ("Lady and the Lamp" and "Nitemare") won Student Academy Awards®.

During his summer breaks, Lasseter apprenticed at Disney which led to a full-time position at the studio's feature animation department upon his graduation in 1979. During his five-year stint at Disney, he contributed animation to such films as "The Fox and the Hound" and "Mickey's Christmas Carol." Inspired by Disney's ambitious and innovative film, "Tron,"

which used computer animation to create its visual effects, Lasseter teamed up with fellow animator Glen Keane to create their own experiment. A 30-second test, based on Maurice Sendak's book, Where the Wild Things Are, showed how traditional hand-drawn character animation could be successfully combined with computerized camera movements and environments.

In 1983, at the invitation of Pixar founder Ed Catmull, Lasseter visited the computer graphics unit of Lucasfilm and was instantly intrigued. Seeing the enormous potential that computer graphics technology had for transforming the craft of animation, he left Disney in 1984 and came to Lucasfilm for what was to be only a one month stay. One month turned into six and Lasseter soon became an integral and catalytic force at Pixar. Working closely with Pixar's Bill Reeves, Lasseter came up with the idea of bringing believable characterizations to a pair of desk lamps and the genesis for "Luxo Jr." was born.

Lasseter and his wife, Nancy, have four boys ranging in age from 3 to 15. They live in Northern California.

RALPH GUGGENHEIM (Producer), vice president of feature production at Pixar, serves as one of the two producers of "Toy Story." He has been Pixar's director of animation production since 1985 and, during his tenure, has produced the animated films "Red's Dream," "Tin Toy" and "Knickknack." In 1989, "Tin Toy" won the Academy Award for "Best Animated Short Film."

Guggenheim was born and raised in New Rochelle, New York, where he first made films with high school friends in his spare time. At Carnegie Mellon University, faced with the "dire consequence" of being listed as an undergraduate English major, he used his interest in filmmaking as a means of pursuing non-traditional studies, and became a Communications major with an emphasis in film and television. This led him to a variety of opportunities including teaching filmmaking to local teenagers, editing news film for Pittsburgh television stations, and being a "one-man band" freelance filmmaker -- directing, shooting and editing industrial and educational films. It also introduced Guggenheim to animation. He sought out

the computer science department at the university after reading about computer animation as a new filmmaking technique.

"Like many in this field of computer animation, I can recall a particular moment of revelation when, in 1973, I saw computer generated images on a computer screen," says Guggenheim. This new-found interest led to studies in computer science. He went on to receive his B.A. in communications and his M.S. in computer graphics and film production from Carnegie Mellon.

At the Computer Graphics Lab of The New York Institute of Technology in 1978, Guggenheim met and began his association with Ed Catmull and the future Pixar team. He recalls, "Even then, we all discussed the notion that someday we'd be making full-length films with this technique. It became something of a quest for us." Two years later, he joined Lucasfilm's Computer Research Group as director of editing research. He also served as lead designer of one of the first commercial non-linear editing systems, introduced in 1984 as Lucasfilm's EditDroid.

In 1985, Guggenheim returned to his interest in computer animation and joined the team of John Lasseter and William Reeves, who went on to produce Pixar's short films. From 1989-93, Guggenheim was the Executive Producer of Pixar's television commercial work, which resulted in two consecutive Gold Clios for Achievement in Computer Graphics in as many years.

Guggenheim and his wife, Marsha, have two children. They live in Northern California.

BONNIE ARNOLD (Producer) brings her extensive experience in live-action film production to her latest stint as producer of "Toy Story." A native of Atlanta, Georgia and a lifelong movie aficionado, her credits include a variety of production roles with some of today's top filmmakers (directors such as Peter Weir, Tony Scott, Stephen Frears and Michael Mann) and stars (Harrison Ford, Denzel Washington, Daniel Day Lewis and Kevin Costner).

An interest in journalism led to her first professional assignment as unit publicist for American Playhouse's debut production, "King of America." Following that, Arnold began

working with several independent filmmakers' groups and helped to promote the Atlanta Independent Film and Video Festival in addition to overseeing a touring showcase of independent films sponsored by the American Film Institute. Her efforts to arrange financing for independent ventures influenced her decision to pursue a career as a producer.

In 1984, Arnold worked on her first major Hollywood film as a production coordinator for Neil Simon's "The Slugger's Wife," which was filmed in the Atlanta area. She went on to serve as production coordinator for the U.S. portions of Peter Weir's "The Mosquito Coast." While working in a similar role on "Leader of the Band," she met David Picker, who invited her to work with him when he became head of Columbia Pictures. Assignments as production supervisor on "Stars and Bars," "The Mighty Quinn" and "Revenge" followed. Her association with Kevin Costner and her reputation for managing complex productions led to her next credit as associate producer on the epic western, "Dances with Wolves." She went on to serve as associate producer on "The Addams Family" and worked on major productions with Daniel Day Lewis ("The Last of the Mohicans") and Dustin Hoffman ("Hero") before taking on her role as producer on "Toy Story."

Arnold has a B.S. in journalism from the University of Georgia and an M.S. in journalism from Boston University.

RANDY NEWMAN (Songwriter/Composer) brings his special brand of whimsy and lyrical storytelling to three delightful new songs written for "Toy Story." He also contributed the film's incredible underscore, which highlights the fast-paced action-adventure, the heartfelt emotional moments and everything in between.

"I took a look at some of the storyboards and animation tests they had done and I was just amazed by the way it looked and I liked the idea of the story," says Newman about his attraction to the project. "I have a great interest in animation and found the computer graphics fascinating. I've always admired Carl Stalling and the other composers who specialized in music for cartoons and I wanted to do one myself," he continued, "I absolutely loved the people involved in the project."

The Grammy Award®-winning composer, best known for his witty and ironic lyrics on hit songs like "Short People" and "I Love L.A.," is a musical composition graduate from UCLA. He began his professional career at 17, when he took a job as a writer with a Los Angeles music publishing company. Born into a quintessential musical family -- both his uncles, Alfred and Lionel, were legendary film composers -- this seemed a natural path for Newman to follow.

His flourishing pop music career began with a recording contract in 1967 with Warner Music. For over two decades, through 11 albums and 7 film scores, Randy has delivered a succession of hits which have earned him the reputation as the wittiest composer in pop music as well as critical praise. His debut vocal album, Randy Newman, was released in 1968, followed by Twelve Songs (1970), Randy Newman Live (1971) and Sail Away (1972). The late seventies saw the release of three quintessentially Newmansque albums Good Ol' Boys (1974), Little Criminals (1978), featuring the million-selling hit "Short People," and Born Again (1979). In 1983, he released Trouble In Paradise and, in 1988, the quasi-autobiographical Land of Dreams.

In 1982, Newman turned his attention to motion pictures, and his music for "Ragtime" garnered an Academy Award® nomination for Best Original Score as well as Best Original Song for "One More Hour." He followed up with a Grammy Award and a second Oscar nomination for instrumentals in "The Natural," starring Robert Redford. Newman went on to create notable scores for such distinguished motion pictures as "Parenthood," "Avalon," "Awakenings," "Maverick," and "The Paper," receiving a total of 6 Oscar nominations.

His most recent venture, a new musical comedy Randy Newman's "Faust," for which he wrote the book, music and lyrics, is a comic twist of Goethe's famous legend told in quintessential Newman fashion. The stage version of "Faust" has its highly anticipated world premiere last month at the Jolla Playhouse, winning rave reviews. To coincide with the premiere of the show, Newman released (Reprise Records) the highly acclaimed "Faust" album, which features vocal performances by Elton John, James Taylor, Don Henley, Linda Ronstadt, Bonnie Raitt and Newman himself as the Devil.

Among the many projects on Newman's busy slate is Walt Disney Pictures' upcoming

stop-motion animated feature "James and the Giant Peach," based on the enormously popular book by Roald Dahl and currently being directed by Henry Selick ("Tim Burton's The Nightmare Before Christmas"). That film, which is due for release next Spring, features five great new Randy Newman songs, which will be sung by an all-star cast of animated bugs.

DR. WILLIAM REEVES (Supervising Technical Director) joined the computer division of Lucasfilm, Ltd. in 1980 as project leader of the systems group and a member of the computer graphics group. In 1982 he invented a new image synthesis technique, particle systems, that enables the generation of very complex and detailed images. From 1982 to 1986, he worked as project leader of the modeling and animation group. In 1986, Dr. Reeves joined Pixar as head of Animation Research and Development. His film credits while at Lucasfilm, Ltd. and Pixar include: "Star Trek II: The Wrath of Khan," "Return of the Jedi," "Young Sherlock Holmes," "Luxo Jr." (1986 Academy Award® nominee), "Red's Dream," "Tin Toy" and "Knickknack." In 1988, Dr. Reeves received an Academy Award® for Best Animated Short Film for his work as technical director on "Tin Toy." He received his B.S. in math from the University of Waterloo in Canada and his master's and Ph.D. in computer science from the University of Toronto.

STEVEN JOBS (Co-executive Producer), chairman and chief executive officer of Pixar is a co-executive producer on "Toy Story." Jobs purchased the computer division of Lucasfilm, Ltd. in 1986 and formed Pixar as an independent company. Before becoming co-founder, chairman and chief executive officer of NeXT Computer, Inc., Jobs also co-founded and served as chairman of Apple Computer, Inc. Under his guidance, Apple grew to become a \$2 billion company. In recognition of his pioneering work in technology, he was awarded the National Technology Medal by President Reagan in 1985 and the Jefferson Award for Public Service in 1987. In 1989, he was named "Entrepreneur of the Decade" by INC. magazine. Jobs attended Reed College in Portland, Oregon.

DR. EDWIN CATMULL (Co-executive Producer), Pixar's executive vice president and chief technology officer, serves as a co-executive producer on their first feature film project. George Lucas recruited Dr. Catmull in 1979 to become vice president of the newly formed computer division of Lucasfilm Ltd., with the charter to bring his high technology expertise to the film industry. He was a key developer of RenderMan®, the Academy Award®-winning program that creates realistic digital effects for computer graphics and animation. In 1993, Dr. Catmull was awarded the Scientific and Technical Engineering Award from The Academy of Motion Picture Arts and Sciences for this work. He also won the Coons Award, which is the highest achievement in computer graphics, for lifetime contributions.

THOMAS SCHUMACHER (Executive Vice President, Walt Disney Feature Animation) served as Disney's creative point person throughout the development and production of "Toy Story." Lending his expertise in storytelling and development for feature-length animated films to the proceedings, he worked closely with the creative team at Pixar to shape the final film.

In his current role as executive vice president of Walt Disney Feature Animation, Schumacher is responsible for overseeing the development and production of all animated feature projects for the studio. He is also in charge of developing the studio's future stage productions. He first joined Disney in 1988 to produce the animated feature, "The Rescuers Down Under" (1990) following a distinguished 10-year career in the performing arts. As co-founder and associate director of the acclaimed 1987 Los Angeles Festival of the Arts, he was instrumental in presenting the American premieres of Ingmar Bergman's stage production of "Miss Julie," Peter Brook's eleven-hour epic production of "The Mahabharata" and Canada's immensely popular "Cirque de Soleil" (which has since toured throughout the United States).

Prior to the Los Angeles Festival, Schumacher spent five years on staff at the Los Angeles Music Center's Mark Taper Forum, where he worked on over 25 productions for the Taper Mainstage, the second space, Taper Too and the Taper's literary cabaret. Additionally, he produced three original productions for the theater's touring program for the young

audiences, the Improvisational Theater Project.

He has worked as a line producer on the 1984 Olympic Arts Festival, served as assistant general manager of the Los Angeles Ballet, and has participated extensively in conferences and on panels relating to the arts and arts policy.

Schumacher is a graduate of UCLA, and he is currently on the Education Council of the Los Angeles Music Center, and chairs the board of directors of the Rachel Rosenthal Company.

JOSS WHEDON (Screenwriter) is one of the most successful and sought after young writers working in Hollywood today. A former story editor for the long-running hit TV series "Roseanne," Whedon wrote the screenplay for the 1992 feature film, "Buffy the Vampire Slayer," provided a major rewrite for the smash hit, "Speed," and helped to polish Kevin Costner's futuristic fantasy "Waterworld." His television credits also include a stint as co-producer/writer for the 1990 series "Parenthood" and he has completed a pilot for a proposed series based on his character "Buffy." The popular screenwriter recently completed a script for a fourth "Alien" adventure ("Alien Resurrection") and a big screen version of his screenplay "Afterlife" is in development at Columbia. Also in the works is a feature thriller called "Suspension," based on his screenplay. Whedon was born in New York and attended college at Wesleyan University in Connecticut. He moved to California in 1987 and launched his writing career two years later.

ANDREW STANTON (Screenwriter/Story) joined the Pixar animation team in 1990 after several members from the studio saw his independent animated shorts -- "Somewhere in the Arctic" and "A Story" -- at the Festival of Animation. During the past five years, he has served as directing animator on commercials for Trident, La Nouvelle Polo, Lifesavers (co-director) and directed spots for Tropicana, Bunn Coffee Makers and Listerine. He also co-directed with John Lasseter on "Luxo Jr in Surprise/Light and Heavy" which was produced for "Sesame Street." A native of Rockport, Mass., Stanton studied his craft at CalArts (California Institute of

the Arts in Valencia, California), where he received his BFA in character animation. His other professional credits include writing for Ralph Bakshi on "The New Adventures of Mighty Mouse" and animating for Kroyer Films, Inc. His short film, "Somewhere in the Arctic," was a recipient of the Nissan/Focus Award."

JOEL COHEN (Screenwriter) has been writing professionally for over 12 years. A native New Yorker and a graduate of State University of New York (where he received a master's degree in English), he launched his career by writing two off-Broadway plays ("Rat's Nest" and "Friends Too Numerous to Mention"). Following a stint as associate producer on the Michael Laughlin film "Strange Invader," Cohen relocated to California in 1985 to devote his energies to writing motion pictures. Shortly after his arrival, his screenplay for "Pass the Ammo," a black comedy satirizing television evangelism, was produced and received critical acclaim. He also co-wrote (with director Bill Condon) "Sister, Sister," starring Jennifer Jason Leigh and Eric Stoltz. In 1989, Cohen teamed with Alec Sokolow and the two have been writing partners ever since. Their earliest collaboration, a comedy called "Money Talks," is set to go before the cameras early next year. The team has also written several other comedy scripts -- "Cuba Has Fleas" (for Columbia) and "Family Man" (for Eddie Murphy Productions) -- and their current project is a screenplay for the music group, TLC. Cohen and Alec Sokolow recently wrote and directed an original musical comedy for home video called "Frankenstein Sings," which is due out from Turner Home Video this November.

ALEC SOKOLOW (Screenwriter) is a veteran writer with a variety of television and motion pictures credits to his name. A graduate of the University of Pennsylvania and a native New Yorker, Sokolow began his writing career with contributions to National Lampoon Magazine. In 1987, he moved to California and soon found work writing comedy material for television variety and talk shows. Following a nine-month stint on "The Arsenio Hall Show" as a writer and segment producer, he segued into screenwriting as a full-time occupation. When television producer Peter Calabrese introduced him to writer Joel Cohen in 1989, an instant association was formed and the two began writing together from that point on. Among the

projects they have co-written which are actively in development are "Money Talks" (for New Line Pictures and actor Chris Tucker), "Cuba Has Fleas" (for Columbia), "Family Man" (for Eddie Murphy Productions) and an upcoming film project for the music group, TLC. Sokolow and his partner wrote and directed the upcoming direct-to-video musical comedy, "Frankenstein Sings," starring Bobby "Boris" Pickett.

JOE RANFT (Story Supervisor/Story) is widely regarded as one of the top storymen in the animation field. His contributions to a wide range of Disney animated features demonstrate his versatility and talent and he continues to shape and influence major projects for the studio. Among his most recent credits as head of story are two innovative Disney stop-motion projects (for director Henry Selick) -- "Tim Burton's The Nightmare Before Christmas" (1993) and "James and the Giant Peach" (due for release in Spring, 1996).

Born in Pasadena, California and raised in Whittier, Ranft studied animation at CalArts for two years before joining the Disney animation team in 1980. He trained under legendary animator Eric Larson and cut his teeth as a storyman on an EPCOT Center TV special, "Brave Little Toaster," plus early versions of "Who Framed Roger Rabbit" and "The Great Mouse Detective." He went on to provide storyboard work for "Oliver & Company" and "The Little Mermaid," before moving up to head of story on "The Rescuers Down Under." He (and Mark Kausler) also storyboarded the opening cartoon featured as part of Touchstone Pictures' 1988 blockbuster, "Who Framed Roger Rabbit." In 1990, Ranft moved to Seattle for a year to write a children's book and relocated to the San Francisco area the following year to work with both Pixar and Henry Selick on their respective films. He and his wife, Sue, and their son, Jordan, reside in Marin County. After a short hiatus, Ranft will re-team with John Lasseter to lead the storyboard team on the next Pixar-Disney feature collaboration.

PETE DOCTER (Supervising Animator/Story) began his association with Pixar in 1990 and has been hooked on computer animation ever since. As part of the original story team that helped to write and board "Toy Story," he worked on the project for 4-1/2 years and also

took on the role of supervising animator. His other Pixar credits include animating and directing commercials for Tropicana Fruit Juice, Tetra-Pak drink box recycling and Lifesaver Holes at the beach. Docter's interest in animation began at age 8 when he made his first flip book. He went on to study character animation at CalArts, where he produced several student films ("Winter," "Palm Springs" and "Next Door"). Prior to joining Pixar, he was involved in creating hand-drawn animation for Disney, Bob Rogers and Company, Bajus-Jones Film Corp. and Reelworks in Minneapolis.

THE VOICE TALENTS:

TOM HANKS (Woody) delivers another outstanding performance and pulls all the right strings as the voice and personality of a pull-string cowboy who finds his position as top toy in serious jeopardy. The acclaimed two-time Academy Award®-winner brought a wide range of emotions and expert comic timing to this latest role and discovered that the experience was one of his toughest and most rewarding.

"Doing the voice of Woody was much harder than I ever anticipated it would be," says Hanks. "For one thing, the pace is much faster than working on a regular film. With a live-action film, you do a scene and then you hang around for three hours while they get ready to do the next thing. On this film, there were no stand-ins. You have to essentially act full-bore 100%, standing there with your headphones on for three or four hours at a time."

Although Hanks' nemesis in the film is a spaceman action figure, the actor admits that his favorite childhood toy was a bend-able, posable astronaut from Mattel called Major Matt Mason. "He was made of rubber like Gumby and he had a space helmet," recalls Hanks. "If you played with him too much, the wire inside his arm would break and then he could no longer bend or pose that part of his limb. It was kind of frustrating."

One of today's most admired and respected actors, Hanks received the 1995 Academy Award® for his outstanding performance as "Forrest Gump," which has become the fourth

biggest grossing movie of all time. He also received the 1994 Best Actor Oscar for his compelling performance as the AIDS stricken lawyer Andrew Beckett in "Philadelphia." Hanks is the first actor in 50 years to have won back-to-back Oscars. Most recently, the actor won additional acclaim for his portrayal of astronaut Jim Lovell in Ron Howard's blockbuster drama, "Apollo 13."

Among Hanks' other recent accomplishments, he was named "Man of the Year" by Harvard's Hasty Pudding Theatricals, the nation's oldest undergraduate dramatic group. Through the success of "Forrest Gump," he has also been honored with the Golden Globe Award, the People's Choice Award, the Screen Actors Guild Award, the Chicago Film Critics Award, the National Association of Theater Owners "Male Star of the Year" award and the Hollywood Women's Press Club.

Born and raised in Oakland, California, Hanks first became interested in acting during high school. He attended California State University in Sacramento where he appeared in a production of "The Cherry Orchard," and met director Vincent Dowling who was also the resident director of the Great Lakes Shakespeare Festival in Cleveland. Dowling invited Hanks to intern with the company, where he made his professional debut portraying Gremio in "The Taming of the Shrew." He also appeared in other Great Lakes' productions including "Two Gentlemen From Verona" for which he received the Cleveland Critics Award for Best Actor.

From Cleveland, Hanks went on to New York where he appeared in his first feature film, "He Knows You're Alone," and on stage in "The Taming of the Shrew." He then moved to Los Angeles where he performed in a production of "The Dollmaker," and where his first big break came when he was cast as the lead in the ABC TV comedy series, "Bosom Buddies."

Hanks subsequently starred in "Bachelor Party" and Ron Howard's hit comedy for Touchstone Pictures, "Splash." The latter helped to establish him as one of Hollywood's top stars and led to leading roles in such films as "Volunteers," "Nothing in Common," "Turner & Hooch," "Joe Versus the Volcano," "The Bonfire of the Vanities" and "A League of Their Own."

In 1988, with his box office success firmly established, Hanks found himself a critical

success with his highly-acclaimed work in "Punchline" and "Big" -- with the latter earning him his first Academy Award® nomination. In addition, the combination of the two resulted in his being named Best Actor by the Los Angeles Film Critics. In 1993, he received a Golden Globe nomination for his work in "Sleepless in Seattle," starring opposite Meg Ryan.

Hanks is currently making his feature directing debut with "That Thing You Do" for 20th Century Fox, having previously directed the "I'll Be Waiting" episode of the acclaimed Showtime cable series, "Fallen Angels." He resides in Los Angeles with his wife, actress Rita Wilson.

TIM ALLEN (Buzz Lightyear) gives a top-flight performance as the spirited space ranger who causes chaos among the other toys when he crash lands in Andy's bedroom. Not willing to accept the fact that he is really a toy, Buzz attempts to carry out his mission to save the universe from the evil Emperor Zurg, causing complications of cosmic proportions in his wake. Allen brings the character convincingly to life and infuses him with the same comic sensibilities that have made him a favorite with television audiences and moviegoers all over the world.

Born in Denver and raised, from age 13, in the Detroit suburb of Birmingham, Allen was one of seven brothers raised by his mother. A class cut-up, his favorite high school subject was shop, and his first true love was cars. He traded a whole summer's work at a local speed shop for a custom built, tricked-out dune buggy -- not very practical for the icy streets of Michigan in winter, but try telling that to a teenage boy.

Allen graduated from Western Michigan University in 1975 with a degree in TV production, and went to work as a creative director for a small advertising firm in Detroit. Soon he moved from behind the camera to in front of it, as a performer and commercial spokesman. He still keeps his hand in advertising with the company he formed in 1984, Boxing Cat Productions, which is involved in graphic-arts designs and commercial production.

In 1979, on a dare from a friend, Allen made his first stand-up appearance at Detroit's Comedy Castle. Since then, he has become "a 15-year overnight success," selling out concert venues around the country, including an appearance at Caesar's Palace in Las Vegas. He has

also appeared in the cable specials: "The Montreal Just for Laughs Festival," "Showtime Comedy Club All Stars VII" and two half-hour specials of his own for Showtime -- "Men are Pigs" and "Tim Allen Rewires America."

He won a 1990 ACE Award for Best Performance in a Comedy Special at the "Just for Laughs International Comedy Festival" in Montreal. In 1991, 1992 and 1993 television audiences honored Allen with a People's Choice Award for Favorite Male Performer in a Television Series. He recently received additional People's Choice recognition for his film debut in Walt Disney Pictures' 1994 comedy hit, "The Santa Clause" (Funniest Actor in a Comedy Motion Picture and Favorite Motion Picture Comedy). That film went on to become the #1 comedy hit of the year. In addition to winning awards, Allen co-hosted the 1992 Emmy Awards and has been nominated several times for an Emmy for Outstanding Lead Actor in a Comedy Series. The popular comedian recently won a Golden Globe for being the "Funniest Actor in a Television Series" for his role on "Home Improvement."

Allen's first book, "Don't Stand Too Close to a Naked Man," was also a major success, topping The New York Times Bestseller List and selling out in bookstores across the nation.

Now in his fifth season as Tim Taylor, Allen continues to bring his unique slant on masculinity to series television with "Home Improvement," which he describes as "'Men Are Pigs' at home" His role as host of a fictional cable home improvement show, "Tool Time," is one that he wistfully hopes to recreate in real life someday. "Actually, that's what I want to do, is host 'Tool Time' for real," he confesses. "I love that show."

Allen is set to star in his second feature film for Disney -- "An Indian in the City" -- which will film in 1996.

DON RICKLES (Mr. Potato Head™) is in his element as the wisecracking spud who secretly longs for a Mrs. Potato Head. The popular comedian confesses, "I wanted to do the Tom Hanks part but it involved money and they said, 'we can't pay you that kind of money.' Seriously, I was very glad that they asked me to do this part because young people will hear my voice and say, 'That's Don Rickles,' and hopefully they'll get a big kick out of me doing this."

When told that director John Lasseter and the animators were inspired by his voice, Rickles comments, "John is a lonely, lonely guy. He sits around with Potato Head in his house and plays with it and finds it entertaining. I'm glad to hear that my voice inspired them."

For more than 35 years, funnyman Rickles has appeared in the top showrooms in Las Vegas and Atlantic City. He did not reach the top overnight, rather, like a train gathering steam, he gradually picked up speed and more material for his comedy acts. But his appearance on Johnny Carson's "Tonight Show" in 1965 stands out as the moment of his breakthrough. Immediately following his performance on the "Tonight Show," Rickles became the talk of the town. A fine actor who graduated from the American Academy of Dramatic Arts in New York, Rickles frequently received rave reviews for his acting ability. Armed with the public's seal of approval as a comedian, it was only natural that he should move forward into theater and television.

He scored a major success when he appeared on "The Dean Martin Show." In 1968 "The Don Rickles Show" was part of ABC-TV's prime-time schedule. A highlight of his career came when he was invited by President Reagan to perform at the televised Inaugural Gala where he "zinged" the nation's dignitaries gathered for the occasion.

Still highly visible in television and motion pictures, Rickles has one of his best dramatic roles in the upcoming Universal Pictures "Casino," directed by Martin Scorsese.

One of his proudest moments was the dedication of the Barbara and Don Rickles Gymnasium at Sinai Temple in West Los Angeles. He enjoys a good game of golf, and an occasional set of tennis. He has also been voted among the nation's best-dressed men by the Custom Tailors Guild of America, and the Tailors Council of America.

He and his wife Barbara have two children, Mindy Beth and Lawrence Corey.

JIM VARNEY (Slinky Dog™) provides the down-home country drawl for a collapsible canine slinky toy.

He began entertaining at a young age because his remarkable ability to memorize poems and entire passages from books delighted his family. It was not surprise when just prior to graduating high school, Varney was offered an acting apprenticeship by the prestigious

Barter Theater, a nationally acclaimed professional company whose former players included Helen Hayes, the Barrymores and Gregory Peck. He did later earn his G.E.D. though. At age 18 he left for New York City to seek fame and fortune, and spent time performing stand-up comedy at clubs and playing a variety of featured roles in dinner theater productions.

In the early 1970s, he auditioned for a local commercial and won the part of "Sgt. Glory," a character created by the Nashville-based Carden & Cherry Advertising Agency. The series of commercials that followed proved to be extraordinarily popular and ran for almost five years in Tennessee. Varney continued to pitch spots and work the comedy club circuit. Then in 1980 he got another call from Carden & Cherry Advertising. This time they wanted him for a new character -- Ernest P. (for Powertool) Worrell. The public's response to this characterization was immediate and positive. Before long, Ernest became a pitchman for everything from dairy products, soft drinks and car dealerships.

His major motion picture breakthrough came in 1987 when he starred in Touchstone Pictures' "Ernest Goes to Camp." He went on to star in the successful sequels, "Ernest Saves Christmas," "Ernest Goes to Jail," and "Ernest Scared Stupid."

Varney also has an Emmy Award for his television series "Hey Vern, It's Ernest!" In 1992 the Tennessee State Senate honored Varney for his outstanding contributions to the State, particularly to children's charities.

He divides his time between commercials, television and motion picture assignments. He lives on a large farm in Whitehouse, Tennessee.

WALLACE SHAWN (Rex) brings his familiar brand of comedy and paranoia to the role of a T Rex with a major inferiority complex. He injects the right amount nervousness and sensitivity not usually found in the voice of a Tyrannosaurus Rex.

"As a child I always wanted to be an animator. And I wanted to make cartoons in this very Disney studio," Shawn confesses. Well, his dream has come true, not that he became an animator, but the voice of an animated character.

Shawn attended Harvard University as a history major, but left his Ivy-league surroundings to become a playwright. Over the last 25 years, Shawn has written several

successful works including "Aunt Dan and Lemon," "The Hotel Play" and "The Fever."

Then, at the age of 35, he took a job translating Machiavelli's play "The Mandrake" from Italian to English, and at the same time the director offered him a role in the play. His performance caught the attention of Woody Allen's casting agent, who then introduced him to the famed director, beginning their long-time association. Shawn has appeared in Allen's "Manhattan," "Shadows and Fog," and "Radio Days."

His additional film credits include "Vanya on 42nd Street," "Mrs. Parker and the Vicious Circle," "The Princess Bride" and Touchstone Pictures' "The Cemetery Club." He is also remembered for his recurring role on television's "Taxi" as Marilu Henner's boyfriend.

JOHN RATZENBERGER (Hamm) hams it up as the piggybank with a wealth of knowledge.

Ratzenberger's background and acting experience is quite varied. To most people, he is best known as mailman extraordinaire and trivia king, Cliff Clavin in "Cheers." Born in Bridgeport and raised in Black Rock, Connecticut, Ratzenberger attended Sacred Heart University where he was an English major, studied karate and was an archery instructor. In his spare time, he joined the drama club where he made his stage debut in "Summer and Smoke." He followed up that part with subsequent leading roles in "West Side Story" and "Waiting for Godot."

He left school after four years taking a job on an oyster boat until he discovered a group of his former college chums waiting at the dock. His pals had tracked him down to replace the lead actor in their production of Murry Schisgal's comedy "Luv" at the Stowe Playhouse. He stayed on with the playhouse and performed in various one-man shows before he decided to take a job as a blacksmith and carpenter in North Wolcott, Vermont. After almost two years there, he took a trip to England for a three-week visit and remained there for ten years.

In London, he formed an improvisational theatre group, Sal's Meat Market, for which he co-wrote, directed and acted, portraying as many as 15 characters per show. After attracting the attention of the British Arts Council, he and a partner were given a grant to tour clubs and

theaters throughout Europe.

He signed for his first motion picture role in 1974 in "The Ritz," which starred Rita Moreno. He has since appeared in 22 motion pictures including "A Bridge Too Far," "Yanks," "Superman," "Superman II," "Ragtime," "The Empire Strikes Back," "Outland" and "Gandhi."

On his return to the U.S. in 1981, Ratzenberger became more involved in television series and telefilms such as "Hill Street Blues," "Code Red" and the NBC television movie "Wedding Bell Blues."

His interests are furniture building, sailing and antique collecting. He and his wife, Georgia, son, James John and daughter, Nina reside in the Los Angeles area.

ANNIE POTTS (Bo Peep) shines as the sweet voice of reason among her male toy counterparts. Perky, attractive and adept at both deadpan wisecracks and livewire antics, Potts is perfect as the sultry lamp stand figurine.

This is not the first time that Potts has played Bo Peep. "The first job I ever got in Los Angeles 20 years ago was playing Bo Peep -- outfit, crook and all -- on a half hour sitcom," she comments. It seems that everything has now come full circle.

Born in Nashville, Tennessee, Potts began her theater career in 1964 at the age of 12 in the amateur stage production of "Heidi." Later she moved to Los Angeles and joined the road company of "Charley's Aunt." When the company returned to Los Angeles, company star Roddy McDowell helped launch her career by introducing her to casting directors.

She began appearing in television productions including "Hollywood High" and "Black Market Baby." In 1978 she made her feature film debut in "Corvette Summer." That same year she also had a small role in "King of the Gypsies." Additional screen credits include playing Iona, the funky record store owner in the teen pic, "Pretty in Pink," (1986) and as the daffy secretary Janine Melnitz in "Ghostbusters" (1984) and "Ghostbusters II" (1989). She also worked opposite Jeff Bridges in Peter Bogdanovich's "Texasville" (1990).

Most notably, in 1986 she landed the role as Mary Jo Shively on television's "Designing Women" (1986-93). In the role as Mary Jo, Potts proved she could hold her own with the likes

of scene-stealers Delta Burke and Dixie Carter. She most recently played chef Dana Paladino on "Love & War."

In addition to her work schedule, she serves on the auxiliary board for Mothers Against Drunk Driving, and is the Ambassador for Women for the American Arthritis Foundation. She is married to television director Jim Hayman and has two sons.

JOHN MORRIS (Andy) lends a youthful quality to the voice of an imaginative boy who spends time staging elaborate games with his toys.

His first Disney film was "Tim Burton's The Nightmare Before Christmas" for which he provided a few miscellaneous voices. Morris began acting and entertaining family and friends as soon as he could speak. A dedicated actor, Morris went on to receive his formal training with Judy Berlin's Kids on Camera in 1990, followed by workshops at the Marin Theater Company and A.C.T. He has performed in local productions and played Michael in the Berkeley Repertory Theatre's production of "The Caucasian Chalk Circle."

Morris was born and now resides in Marin County. He enjoys singing and dancing, playing soccer and tennis, and reading a good book.

ERIK VON DETTEN (Sid) gives a deliciously rotten performance as the malicious and overactive kid who loves to torture, torment and blow up toys, all in the name of fun.

In his young career, he has appeared in films including "Amanda" and "Top Dog." His television credits include the hit television show "ER"; movie of the week productions of "Escape to Witch Mountain," "In the Line of Duty: Taxman"; and as a regular on the soap "Days of Our Lives." He has also performed in local productions of the Carson Civic Light Opera's "Gypsy," and the Los Angeles Children's Repertory production of "The Wizard of Oz."

He received his training at the Judy Elkins Commercial Workshop and the Tepper/Gallegos Commercial Workshop.

Von Detten is an avid sports fan and his hobbies include playing piano and roping and rodeo riding.

LAURIE METCALF (Mrs. Davis) is the familiar, caring voice to her anxious son, Andy.

The chance to work with John Lasseter was one of the reasons she decided to work on "Toy Story." "I had seen John's animated features and saw how brilliant they were. I was just flattered that they asked me to be part of this," she said. Though Metcalf is already a mother of two, playing the maternal voice in an animated film was quite a challenge.

Her acting roots go deep as she was an original member of the Steppenwolf Theatre in Chicago. Metcalf has appeared in numerous stage productions including "The Glass Menagerie," "Love Letters" and "You Can't Take It With You." Given her affinity for theater, moving off the theater stage and onto a soundstage was not a problem. Her big break came when she got the part of Jackie on the hit television show "Roseanne," for which she has garnered several Emmy Awards and nominations.

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