



● Sawing up a storm in *Crac*, grand prize winner

In contrast to Ottawa '80, whose central theme was the impact of the computer on the form and content of animation, this year's animation festival was more eclectic. It was a collage of animation ideas and idioms. The classic animation style of the Disney Studios was juxtaposed with the irreverent style of the Jay Ward Studio which gave us *Rocky the Squirrel* and *Bullwinkle the Moose*.

The Emile Cohl Retrospective proved the old adage that there is very little that is new under the sun. Most of the animation techniques that we take for granted today were developed by this inventive French animator.

"Special effects" is a term most of the young movie-goers could easily define because so many of their most popular movies depend heavily on special effects for their impact. Films like *Star Wars*, *Raiders of the Lost Ark*, and *E.T.* owe their style and success to them. Therefore another expression of the art of animation was added to the collage with a special tribute to Animation and Special Effects: Part 1 - The Beginning to 2001, directed by writer and a member of the Ottawa '82 jury, Charles Solomon.

Add to this now ornate collage, themes like Computer Animation - Today and Tomorrow, The Sound of Animation, Video Piracy, Audiences for Short Animated Film and How to Reach Them, and the films in competition and you have an intricate, ornate, and somewhat overwhelming collection of images. One image, however, dominates the collage and incessantly gives it unity. That image is a rocking chair that becomes a symbol of the highest achieve-

Robert Hookey, a regular participant in the Ottawa Animation Festival, teaches film at Sheridan College.

A creative collage

by Robert Hookey

ment in animation - the ability to communicate with an audience. The rocking chair is the central image in Frédéric Back's film *Crac*, the winner of the Grand Prix award at Ottawa '82.

Crac is a prime example of how a well conceived idea, coupled with artistic sensitivity, can result in an animated film that touches an audience deeply. Picture a theatre packed to capacity with animators, journalists, and some members of the general public, all of whom are completely absorbed in a film called *Crac*, that creates the "the illusion of life" so superbly that they have difficulty holding back the tears. They are not responding to some manipulative melodrama but to the beauty of the film's images and its human message of love and caring found in a stable family life. It is ironic that a film that deals with family values should be so popular in a world where family life is in decline. *Crac* also reflects the French Canadian's respect for the institution of the family. Frédéric Back, an animator with Société Radio-Canada, claims he

got the idea for *Crac* from his daughter. With his concern for the careful development of a story, he spent five years on the storyboard. He was intrigued by the role a family plays in giving a child a sense of security and self-esteem. The rocking chair seemed to be the perfect symbol of family security. He remembers how his own children would join him and his wife on the rocking chair. The children would snuggle up and feel safe and secure. His wife's memories of living in a small Quebec village contributed to the authenticity of village life images in the film.

Back was influenced by two talented animators who have created some of the most innovative work in their field. Caroline Leaf's fluid style and Paul Driessen's dramatic line drawings are both evident in his animation style.

The most important consideration in the creation of an animated film, according to Back, is the careful attention given to the story-development stage. Technical ability will not save a poorly developed story idea.

The primacy of story development, especially with regard to character design, pervaded the talk given by Ollie Johnston and Frank Thomas, two of the famous "nine old men" who helped shape the Disney style of animation. Disney animation is sometimes referred to as "full" or "classical animation". Contrast this detailed animation with some of the Saturday morning TV animation for children and you will realize how much care and consideration was given to both technique and story-telling at the Disney studios. Johnston and Thomas have co-authored a book entitled "Walt Disney: The Illusion of Life." It is a study of what both men learned about character animation under the tutelage of Walt Disney. This is not just another coffee table book. It explains the importance of developing a story and characters with whom the audience can be involved.

Many books and articles have been written about Walt Disney emphasising how difficult it was to work with him. When I ask Thomas and Johnston about their working relationship with Disney, they admitted that he could be a hard task master but only because he wanted the best effort from his animators. He was open to suggestions from his staff if the proposal in any way enhanced the story.

Walt Disney had two basic dictums about effective story-telling in animation: the characters must be realistic, and the audience must be able to identify with them.

There were two animation characters that made their appearance at Ottawa '82 that most of the audience could identify. I refer to that absurd duo, *Rocky the Squirrel* and *Bullwinkle the Moose*. As part of the Jay Ward Studio Salute, the

PRIZE WINNING FILMS

Grand Prix

Crac
Frédéric Back, Canada

Jury Commendations

Visual Beauty
Current Caprice / Caprices actuels
Steve Eagle, USA

Animation
The Creation / La Création
Joan Gratz, USA

Experimental Technique
Tango
Zbigniew Rybczynski, Poland

Special Jury Prizes

Effectiveness in Communication
S.V.P. Pollution
Graeme Ross, Canada

Graphic Design
Une Âme à voile
Pierre Veilleux, Canada

Absurdity of Concept
Clockwork Lemons / Citrons mécaniques
Steve Evangelatos, Canada

Films for Children

First Prize
Fishing the Moon From the Pool
La Pêche à la lune
Zhou Keqin, China

Second Prize
Das Feuer des Faust /
Fire of Faust
Katja Georgi, East Germany

First Film by a Student or Independent Filmmaker

First Prize
Het Landhuis / The Country House / La Maison d'été
Josette Janssens, Belgium

Second Prize
Az Ejskaka Csodai / Wonders of the Night / Les Merveilles de la nuit
Maria Horvath, Hungary

Promotional Films or Tapes under 5 minutes

First Prize
Pig Bird
Richard Condie, Canada

Second Prize
Klondike Gold / L'Or du Klondike
George Geersten, Canada

Films or Tapes shorter than 5 minutes

First Prize
Oh What a Knight / La Belle et la boîte
Paul Driessen, The Netherlands

Second Prize
Organic Canonic Icon
Stuart Wynn Jones, Great Britain

Films or Tapes longer than 5 minutes

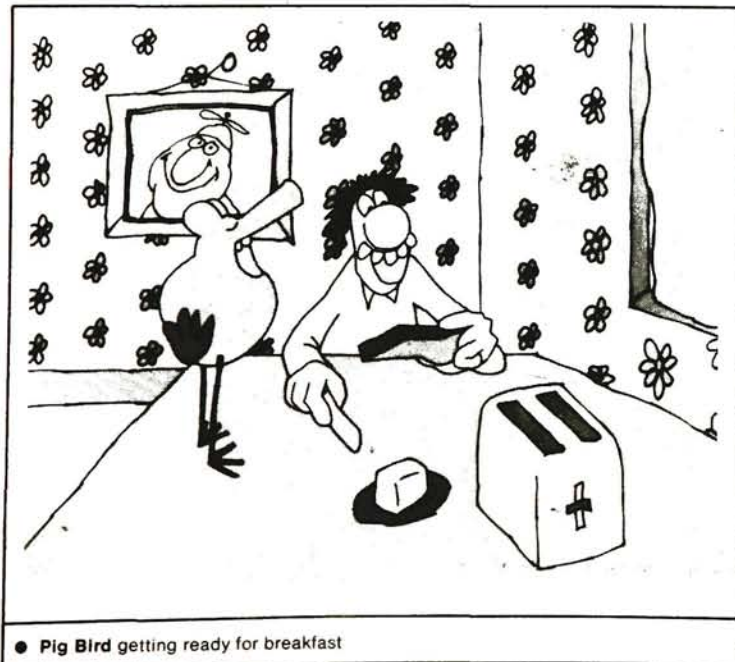
First Prize
None

Second Prize
Two films have tied for second place:
Tyll the Giant / Tyll le géant
Rein Raamat, USSR

Complex/Mindrak/Question de complexes
Milos Macourek, Jaroslav Doubrava, Adolf Born, Czechoslovakia

Prix du public

Tango
Zbigniew Rybczynski, Poland



● Pig Bird getting ready for breakfast

audience was treated to some classic episodes of *Rocky and His Friends*. Still in television re-runs, the fascination with Rocky, Bullwinkle, Natasha Fatale, and Boris Badinov, has led to what could be described as a cult following. Plans to pull the series off television has resulted in angry responses in many cities across North America.

An added attraction was a reading from an original script of *Rocky and His Friends*. The readers June Foray, the voice of Rocky and Natasha, and Bill Scott, the voice of Bullwinkle, brought back some fond memories of a series that had as its main purpose to entertain by poking fun at the Great American Myths. Charles Solomon, host of the salute, best describes the studio's contribution to animation. "The Jay Ward Studio never produced great animation but it made excellent cartoons. The scripts were always satirical, topical, sophisticated and extremely funny. The cast of these shorts was a misshapen crew of weirdos, as bizarre as any character the Fleischers ever drew, with superb voices. It was not unusual for a character to argue with the narrator or point out how sloppily something in the scene was drawn. Unlike the current animated-for-television shows that attempt to disguise their sleaziness with fancy backgrounds and elaborate soundtracks, the Ward cartoon revelled in their cheapness".

An area of animation that cannot afford to be cheap is special effects. The tribute to special effects, also directed by Solomon, underscored the seminal contribution animation has made to create the "illusion of life" in the movies.

Many artists and technicians have invented some impressive effects. However, the stars in this sometimes unheralded aspect of movie making would be George Melies, Willis O'Brien and Ray Harryhausen and the many new special effects men who contributed to films like *Star Wars*, *The Empire Strikes Back*, *Raiders of the Lost Ark*, and *E.T.*

George Melies was a magician turned filmmaker who saw the illusionist possibilities in film. In *A Trip to the Moon*, made in 1902, he created the illusion of successfully sending men to the moon.

In 1933, Willis O'Brien used stop-motion technique to create a classic cinematic creature called *King Kong*. Ray Harryhausen's greatest invention was the battling skeleton sequence in *Jason of the Argonauts*.

There will be many new effects created in the future because one of the attractions of the movies is its ability to create worlds of imagination for audiences hungry for an escape from their problems.

I came to Ottawa '82 hungry for animated films that reflected the variety of techniques and themes that were innovative and reflected a particular country's style. My hunger was satiated to some degree by the quality of children's films in competition.

The festival seemed to be truly international in scope. The jury selection this year honoured outstanding animated films from the following countries: China, Canada, Poland, U.S.A., East Germany, Belgium, Hungary, The Netherlands, Great Britain, U.S.S.R., and Czechoslovakia.

In the category of Films for Children, First Prize went to *Fishing the Moon from the Pool* made by Zhou Keqin of China. It is a delicate cut-out animation film that relates the story of a group of monkeys who try to capture the moon.

First Prize for a First Film by a Student

or Independent Filmmaker was awarded to *The Country House* made by Josette Janssens of Belgium. This is a lyric film that shows a variety of people being enraptured by the music of Mozart.

Pig Bird by Richard Condie of the National Film Board won First Prize in the Promotional Category. This is another entertaining film having a practical purpose, the kind that the NFB does superbly. Canadian Customs, in order to protect Canadians' health, has rules about what animals and plants can be allowed into the country from abroad. A determined citizen sneaks the illegal Pig Bird into Canada and that is the beginning of the most humorous infestation of an unwanted bug that one will ever see. A clever film both conceptually and technically.

The winner of Films or Tapes Shorter than 5 minutes was won by the talented Dutch animator, Paul Driessen, for his film *Oh What a Knight*. A new twist is given to the story of a knight trying to save the damsel from the fiery dragon. Driessen has evolved a unique style that is married with an impeccable sense of story and timing.

The Prix du Public was given to a crowd pleaser called *Tango* made by Zbigniew Rybczynski of Poland. This is a difficult film to describe. Through the use of optical printing, a number of people play out their appointed roles in an extremely cramped kitchen without ever colliding with each other. This dance absurd is accompanied by Tango music. (You had to see it to appreciate it.)

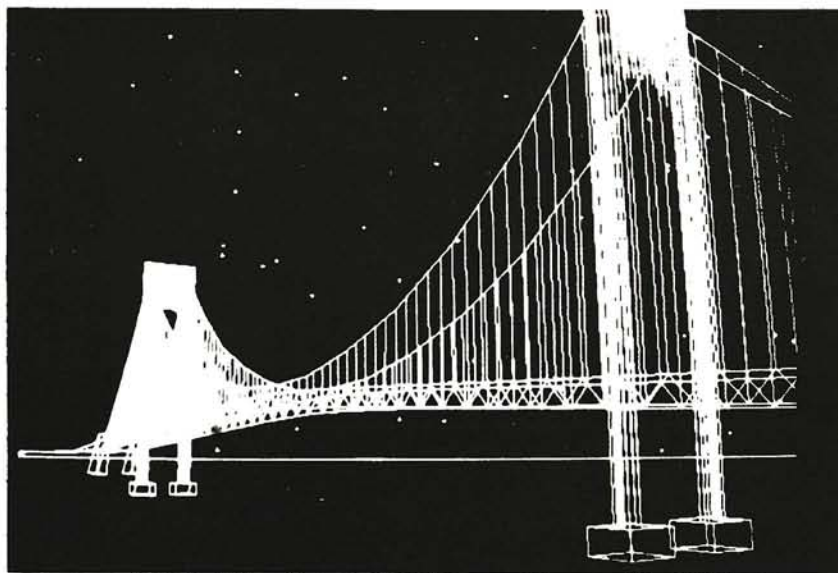
Sometimes juries fail to give recognition to a filmmaker because the film does not fit the established award categories. Ottawa '82 jury resolved the problem by creating a category called Absurdity of Concept. Bravo! jury for your bravery. This award was given to a film entitled *Clockwork Lemon* conceived and animated by young Steve Evangelatos of Canada. A bin of lemons in a supermarket turn sour and proceed to eat their way through the shoppers and the produce. It can best be described as an urban version of *Jaws*. It is encouraging to see young filmmakers getting recognition. The quality of films in competition by young animators was better than any previous festival.

Ottawa '82 was one of the most successful animation festivals to date. This was reflected in the informative and thought-provoking workshops, the high calibre of the films in competition, and the international celebrities that added glitter to a festive occasion.

The Ottawa fest is also one of the warmest and friendliest festivals in the world. Its friendly and professional ambience can be attributed to the dedication of its Producer, Frederik Manter; Festival Director, Kelly O'Brien; International Director, Prescott Wright; and Honorary President of Ottawa '82, Raoul Servais.

Here are my hopes for Ottawa '84. I hope there will be more computer-animated films in competition. I hope there will be some new and innovative themes and techniques. I hope more time will be spent on story development to make all those hours spent on producing a 3-minute or longer film worthwhile for the animator, and satisfying for the viewer. Now I will have to be at Ottawa '84 just to see if my hopes are fulfilled.

Of bits and bytes



Dream Flight by Philippe Bergeron, Nadia Magnenat-Thalmann and Daniel Thalmann

by Arthur Makosinski

"No jaggies" was the underlying motto of Siggraph 82, the Ninth Annual Conference on Computer Graphics and Interactive Techniques, held this year in Boston. The term "jaggies" refers to the serrated, block-like patterns produced on image edges of some computer-generated images.

Computer-assisted animation is already the norm at some of the larger animation houses like Hanna-Barbera in California. The animator is not replaced, but rather he is given a new, powerful tool. He still draws individual cells by hand, but his "canvas" is a digitizing tablet connected to a large piece of a computer memory, which is displayed for the artist on a color video monitor.

His "Brush" is an electronic stylus resembling a pencil. Its effective shape can be any shape he desires, as long as it fits into the allocated computer memory.

On the bottom of the monitor screen is a "palette" of 256 colors in which he "dips" the stylus. In this way, the animator "paints" the outline of his figures and can also automatically fill and clear

large areas, save and restore pictures, magnify the "canvas" selectively for detail work, and record histories of picture composition. He can also combine several pictures together, or call up previously recorded pictures of, for example, trees and seed them all over his current "cell." Similar treatment is used for producing background cells and titles.

The memories which store the huge amounts of digital bits associated with each scene are called "frame buffers." A single animation film frame may require as much as 500 kilo bytes (eight 'bits' equal one 'byte') of memory for a modes screen resolution of 512 x 512 lines and 8 bits assigned for each color: red, blue and green. In a half-hour show, this translates to over 500 million bytes of memory. The directly accessible memory space is the bottleneck of digital image creation. Such memory size, although possible, is still expensive and bulky.

Somewhere during the completion of a computer-animated film, a decision is made whether to "dump" the images on film or onto video tape. In case of a studio like Hanna-Barbera, whose products are for T.V., the image goes from the digitizing tablet to frame buffers, to hard magnetic disks and finally to one-inch C-type videotape. If the image is destined for the big screen, it is usually transferred directly from frame buffers, or sometimes from hard disks to a high-

resolution monitor with a 35mm camera in front of it, or in some cases directly to film using a modulated laser beam. Traditional animation techniques are also often combined with computer-painted images and the two are transferred either to video or 35mm film under computer synchronization. In general, most sophisticated programs for computer animation systems are made to measure and are not available commercially. Ampex took three years to build the system for Hanna-Barbera, which also had to buy the people who came with it.

Other studios, like the one at The New York Institute of Technology, have also developed their own software, but are willing to sell at least some of it. "Tween" is a key-frame animation system program where the artist draws or enters key-frames and the computer interpolates the missing ones. Written by Ed Catmul, its operation is similar to the programs which created Peter Foldes' *Meta Data* and *Hunger*, the National Film Board of Canada's early contribution to this field. What distinguishes Catmul's program, beyond its use of color, is that Foldes used direct, vector images, while Catmul's program is adopted for the more difficult, vast scan systems. That is where "the jaggies" have to be dealt with through complicated dynamic anti-aliasing algorithms.

It was most refreshing to view *Meta*

Data along with other oldies but goodies, shown at the Siggraph. The film still stands out head and shoulders above other similar efforts.

The new Canadian offering at the Siggraph was *Dream Flight* made by Philippe Bergeron and the Thalmanns. Shot off a Tektronix 4027 vector graphics terminal connected to a Cyberg computer, it was similar in technique to the Peter Foldes films and, although it spirited clever animation, it seemed dark and pretentious in its theme and choice of music.

The great treats of the show for many were the examples of solid, three-dimensional computer-generated imagery. Already used for creating TV logos and commercials for Life Savers and The Bell System, and the PBS 'Nova' and NBC logos, these directly generated synthetic images are the result of a marriage of graphic artists and some of the brightest minds in mathematics and computer science. This year also marks the first time that these images were used in two feature films, notably *Star Trek II* and *Tron*.

Lucas Films, a division of ILM Company, was responsible for creating the 1261-frame scene in which the space ship flies by a dead plane, throws a genesis bomb, and brings it to life. Here are some details on how this remarkable image was shot as described by Alvy Ray Smith of Lucas Films.

(1) Exact star positions were deter-

Arthur Makosinski is with the Physics Department at the University of New Brunswick and is working on a film called *Free the Meat*.

ANIMATION



● Foldes' *Hunger* was a pioneering effort

mined from the "Yale Bright Star Catalog," generated and fed into magnetic disks.

(2) The projectile path of the spaceship with respect to the earth was calculated as a 6th degree polynomial and modelled on a vector display.

(3) The image of the planet was painted by C. Evans of ILM, digitized, and "wrapped" mathematically on a sphere with shade by T. Duff.

(4) The explosion-strip image was generated by tracking 400,000 particles in several planes, all anti-aliased (no jaggies) and motion-blurred.

(5) The atmosphere was generated from actual physics formulae by Baxter's "Physics."

(6) The most difficult images of the surface of the planet, the mountains and the sea, were the results of what mathematicians know as hidden-surface algorithms consisting of 231 data points, mathematically "wrapped" on a sphere, with separate algorithms for color and shade. The calculations generated the so-called "fractal" (irregular topological dimensions) mountains whose positions and dimensions were recalculated for each frame.

(7) The scenes were then synchronized, and the output of the DEC, VAX computer was connected to a standard Barco, 500 x 486-line RGB monitor. A Vista-Vision camera loaded with 5247 films was placed in front of it. The whole filming process was automatic, and no one was present during the most of the nine hours it took to shoot the 1261 frames.

The film was delivered on time and in the exact format the producer wanted.

Tron made much more elaborate use of computer-generated animation. In fact, over 64% of the film was computer generated. Most of the computer work was handled by Information International Inc. and Magi-SynthaVision. All geometric models were based on sketches provided by Disney animators. Some figures, like the Sark's Carrier and the Solar Sailer, were created by digitizing orthogonal views of the Disney drawings, then test-viewing them on a vector display before the final encoding.

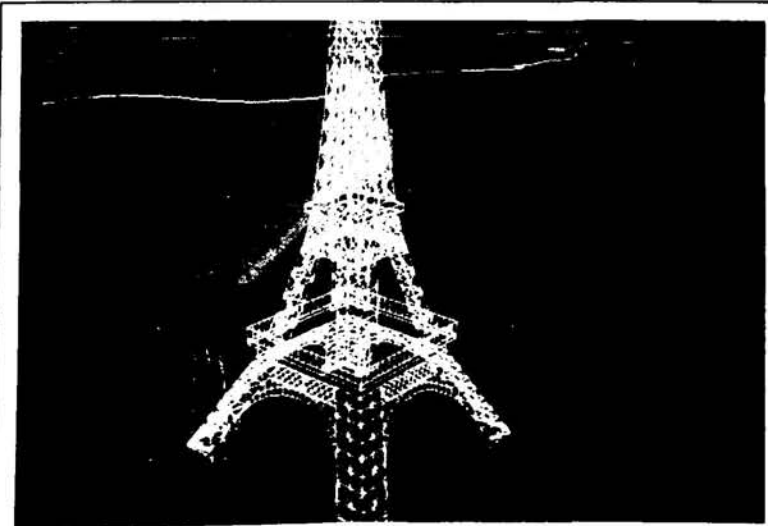
Other more regular shapes and shading were created using a wide variety of existing and specially written programs by ILL. Shot with a resolution of 1024 x 1024 lines with six bits depth of each primary color, the resulting resolution is as good or better than that shot with a lens of 35mm film. Relatively few people were involved on the computer end of the production, and no paper or wire models were used.

At one of the Siggraph presentations, Ed Catmul tried to set a goal for the future of computer graphics in film. He targeted realism and its manipulation as the chief aim, underlining that no words can compensate for a bad picture (don't we know that, Ed!). "Don't show a picture you have to apologize for, continue progress for higher quality," he touted. "Don't think of any hidden-surface algorithm, without thinking about the anti-aliasing (the jaggies problem)."

Computer resources for the purpose of making pictures are scarce. Researchers and experts in this field tend to associate with academic institutions or the U.S. Defence Department. Little work of this kind is going on in Canada, right? Not for long. Sheridan College in Oakville has just announced Canada's first one-year certificate program in Computer Graphics. Anyone interested?



● Scenes of tranquility in *Meta Data* and *Dream Flight*



● Reaching for new heights in *Dream Flight* and *Meta Data*

