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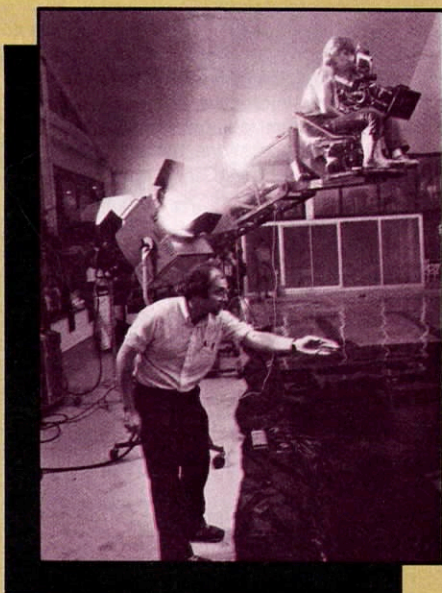
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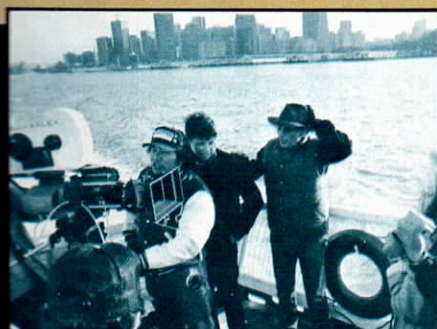
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THIS MONTH'S COVER:



Bill Aydelott directs commercial for WCOZ Radio, Boston. Massachusetts production report begins on Page 68. Photo by Leon Kestenbaum.

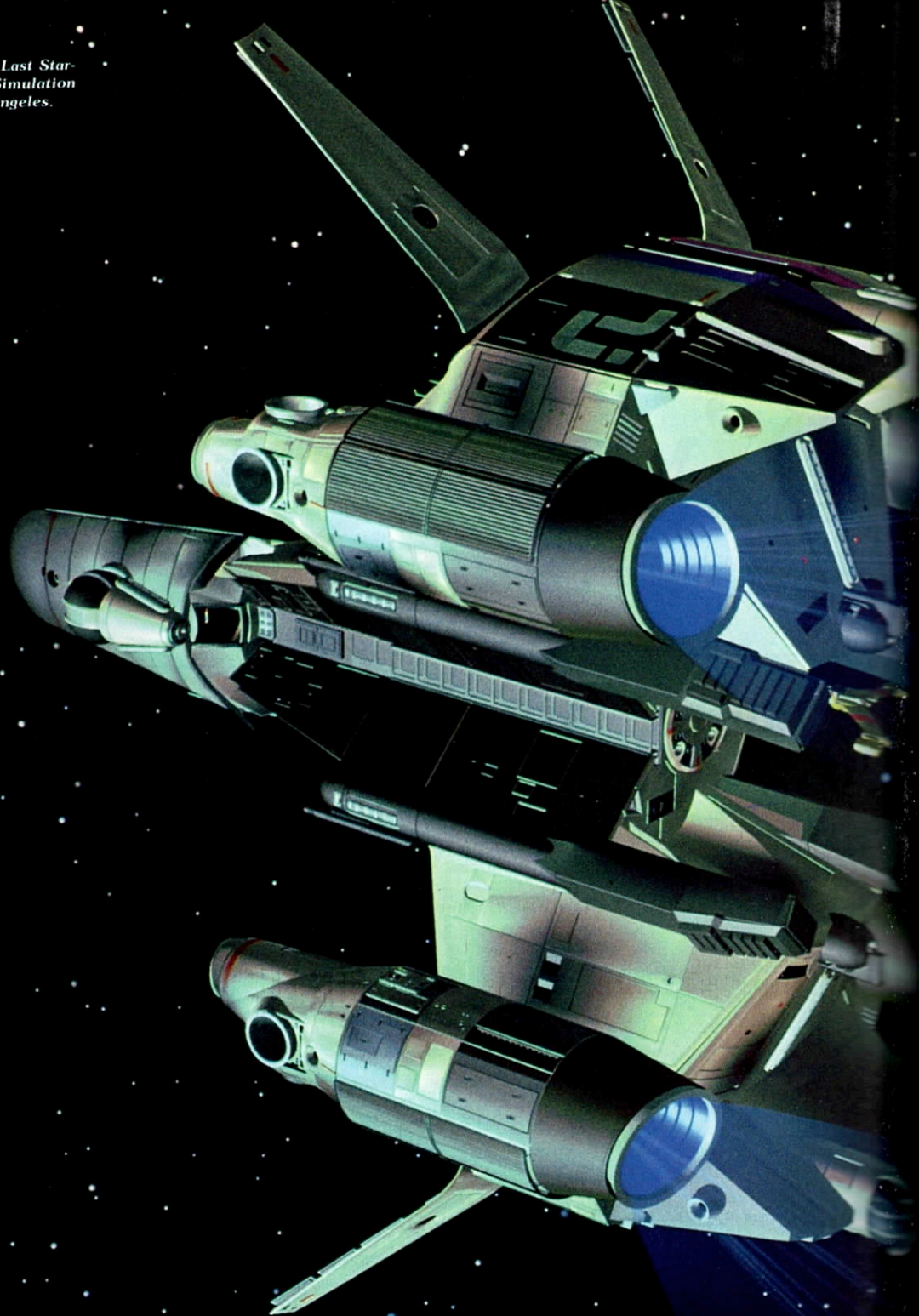


Jerry Schatzberg (in hat) directs 'No Small Affair' for Columbia Pictures aboard Sausalito Ferry with San Francisco skyline in background. Northern California production overview begins on Page 122.

High resolution computer-generated scene from Lorimar/Universal's 'The Last Starfighter' depicts alien Gunstar leaving moon of Rylos. The sci-fi feature, which includes approximately 30 minutes of computer-generated imagery by Digital Productions, is scheduled for release this month. Digital Scene Simulation™ by Digital Productions, Los Angeles, Calif. © 1984. All rights reserved.

Computer-generated scene from 'The Last Starfighter,' created using Digital Scene Simulation process by Digital Productions, Los Angeles.

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# "THE LAST STAR

**T**he Last Starfighter," a Lorimar/Universal feature slated for summer release, is not strictly another sci-fi in the sky. Although the film encompasses all the essential elements of any good dramatic space tale — good vs. evil, interstellar warfare, alien creatures and ultra high-tech space mobiles — it also marks a breakthrough in the use of special effects. For the

*(Continued)*



**Computer-Generated Graphics  
Give Live Action a Run for the Money  
in Lorimar/Universal Sci-Fi Adventure**

By CLAUDIA ELLER

# STARFIGHTER"



'Last Starfighter' production crew on location.

first time in motion picture history, viewers will see full screen, high resolution computer-generated imagery presented as live-action.

Utilizing its in-house creative and technical software and a \$12.6 million supercomputer, **Digital Productions Inc.**, Los Angeles, enhanced the film with 300 scenes — approximately 30 minutes — of completely computer-generated images. In creating the effects, the company bypassed the traditional use of models, miniatures and opticals, thus, the necessity for conventional manpower, sets and post-production assist.

"We've presented a new level of realism never before achieved in special effects for films," indicated John Whitney, Digital president. "We've crossed that threshold

where we've simulated a sufficient amount of scene detail to reproduce the look and presence of live-action and I think the audience is going to feel that they're not looking at special effects but are seeing film that was shot live in space."

Premiered at this year's Cannes Film Festival and scheduled for national release July 15, "The Last Starfighter" was produced by Gary Adelson and Edward O. Denault, directed by Nick Castle and written by Jonathan Betuel. Starring Lance Guest, Dan O'Herlihy, Catherine Mary Stewart and Robert Preston, this sci-fi adventure comedy tells the story of a contemporary 19-year-old video game whiz from a rural town who is whisked into space by an alien rogue to save the universe from evil forces.

Guest, who had a small part in "Halloween II," stars in his first major feature role as Alex Rogan, a youth from a remote trailer park adept at a video game called Starfighter. Unbeknownst to Alex, whose videomania is propelled by his desire to escape his otherwise boring life, Starfighter was placed on Earth by "good" aliens as a training device to prepare select players to become actual space warriors.

Obviously a choice candidate to protect the Star League of Planets from its enemy, the Ko-Dan, Alex is recruited by Centauri, played by Robert Preston, an interstellar con-artist who dons a human disguise while enlisting Starfighters on Earth.

"The writer had Robert Preston in mind and used the image of him to create his character," said Castle. "He's a kind of 'Music Man' scallywag with a heart of gold."

Catherine Mary Stewart, best known for her former role as a regular on "The Days of Our Lives," portrays Maggie, Alex's girlfriend, who unlike her beau holds no dreams of someday settling in a big city, let alone in outer space. Irish character actor Dan O'Herlihy stars as Grig, Alex's Gunstar (main spaceship) navigator, a masked interstellar iguana who looks like a cross between a turtle and a snake.

"The Last Starfighter" was lensed by King Baggot, whose director of photography credits include "Doctor Detroit," "Beatlemania," "Some Kind of Hero," "The Hand," and most recently "Revenge of the Nerds" for **20th Century-Fox** and "Oh God III" for **Warner Bros.** Baggot called "The Last Starfighter" the most challenging film he had ever worked on "because we were working with the commodity of Digital, plus tremendous sets and we were dealing with space — the unknown," he said.

Principal photography ran from the beginning of June 1983 to the end of August, approximately 60 shooting days. Exteriors of the trailer park and a few surrounding locales such as the general store at which the Starfighter video game was placed, and a nearby lake, were shot in California's Soledad Canyon, a location near Newhall.

"It was a pretty location in the middle of nowhere," described Castle. "The idea was to keep the kid isolated so he didn't want to leave home."

The majority of the film, however, was shot at **MGM-UA Studios**, Culver City, where three elaborate sets were constructed: The Rylos (good aliens) hangar installation, supposedly embedded in the middle of a mountain on the planet of Rylos; the interior of the Ko-Dan (evil alien) command battleship; and a landing tunnel for star cars. A huge mock-up of the "good guys" warship, the Gunstar, was also constructed at the studio, which featured a special rotating seat designed by special effects supervisor Kevin Pike.

According to Adelson, between \$3.5 and \$4 million of the film's overall \$14 million budget was allocated for the special effects sequences supplied by Digital. The company's principals, producers, production designers and technicians spent over a year creating the computer-generated effects, much of which was completed before the live-action photography began.

To achieve the effects, Digital utilized its proprietary Digital Scene Simulation process, a trade name for the method by which

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its staff creates realistic-looking imagery — simulated objects, environments and partial characters — via computer graphics.

**A "passion" for computer simulation**

It was Whitney's long time passion to get involved in a feature film production that would incorporate the heavy use of computer simulation with the elements of market ties for electronic games, a "magnificent" score and sound effects, plus a "strong story line with a human interest aspect in it," that found him a participant in "The Last Starfighter" project. Before "Starfighter" came along, Whitney had even met and collaborated with Miguel Tejada-Flores, who worked in Lorimar's feature department, in developing specifications, and ultimately a script, that would fit this bill.

When the "Starfighter" script began circulating and was brought to their attention, the two jumped on the project. "We really got excited about it," said Whitney. "It was the closest thing we could find in two years of looking."

At that point, the piece was presented to Adelson, who subsequently became one of the film's co-producers. Whitney and Gary Demos, his business partner, both with extensive backgrounds in using computers to create images, founded Digital Productions literally as a backyard (more appropriately side-yard) operation. Working 14 hours a day and conducting meetings on park benches, the two maintained offices in an eight-foot construction shack along side a stream in Rustic Canyon where Whitney was building a house. Two years later, Digital has evolved into a multi-million dollar business, employing a staff of 63 people and housing one of the world's most powerful and expensive computers, the Cray XMP.

"With all due respect to the great people at Lorimar, the ultimate step to green-light the picture took tremendous courage on their part — a great leap of faith," asserted Whitney. "Because Digital actually began negotiations with no facilities whatsoever, there was no computer, no investment, and no ability whatsoever to produce a single image on our own — it was simply talk and our reputation."

The firm went through a step-by-step process of building credibility by identifying specific special effects sequences in the script and outlining for Lorimar how they were to be accomplished. This led up to January, 1983 when the picture was given the go-ahead, and formal pre-production began.

"We've had three months of pre-production, then 12 months to do the effects in the computer," recalled Whitney, who masterminded the entire technical development of the project, working closely with Demos, senior vice-president and production designer Ron Cobb.

Adelson, whose first feature film is "Starfighter," was responsible for "convincing" Lorimar and Universal to involve Digital in the production. He said that though Whitney's technology was unproven at the time, he had worked with him previously and therefore had the confidence in him and in the emerging technology.

"I went to Lorimar to [ask them] to give John money to at least approximate that it

*(Continued)*

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## Film

could be done — and they did that," noted Adelson. "It was a big risk, no question, but we all felt it could be done. I think John's a pioneer and we've done stuff that's never been seen before — it looks great."

In searching for a director with a "sense of style," Adelson hired Nick Castle, because he was impressed both with a low-budget film he had made two years previously for New World Pictures called "Tag," as well as the insightful and comprehensive notes he submitted after reading the "Starfighter" script. Castle, who had previously worked on several projects with his former USC schoolmate, John Carpenter, including the Academy Award-winning "The Resurrection of Bronco Billy," and "Dark Star," also co-wrote the feature "Escape from New York," and acted the part of the killer in "Halloween."

Though brought into the project after the initial designs of the computer imagery had gotten under way, Castle is credited with having invaluable input into its creation and execution, according to Adelson and Whitney. In addition to directing all the live action sequences, Castle worked hand in hand with Digital directing the special effects passes.

"I imagine I spent thousands of hours over at Digital approving shots, working on moves, lighting scenes, looking at film and making suggestions and changes," said Castle. "It was a real long process."

Castle had some input on designing the features of the main spaceship, and a lot more to add on the ships that followed. "But, basically they were all Ron Cobb's designs," he noted. Best known for his production de-

sign on "Alien," Cobb designed all the hardware. Meanwhile, Castle said, "I was doing the storyboards based on the screenplay, which changed pretty much over the six months." While the initial storyboards took about two months to complete, another more specific set for each shot was created for the technical directors, who actually "choreographed" the movement and action of the various objects.

Cobb, hired at the time not only by Digital as a staff production designer but by the studio as the film's production designer, oversaw the project from the design stages to the implementation of the moves and was responsible for the final look of the entire film. "Aside from Cobb, there were about eight or 10 technical directors, all of whom were assigned specific shots," said Castle. "And they, along with Ron and myself, created the moves, lit the scenes and made sure the details were worked out. It was a real learning experience."

### Flexibility with computers

As the director of both the special effects and live-action, Castle believes he had both more and less control when working with the computers than he did with the aspects of the live shoot. "You have a lot more flexibility in terms of designing and re-designing moves in midstream with computers," said Castle. "You can see the shots that don't work and you can throw them out and you haven't lost as much time as you would have with motion control. So the main advantage is it gives you the opportunity to make mistakes and not have to live with the mistakes."

Additionally, regarded Castle, the advan-

tage of being able to view the images on a computer screen while designing them, allows a designer to manipulate the course of action and different movement paths the objects follow, as opposed to looking at something frame by frame and only imagining what different shots might look like.

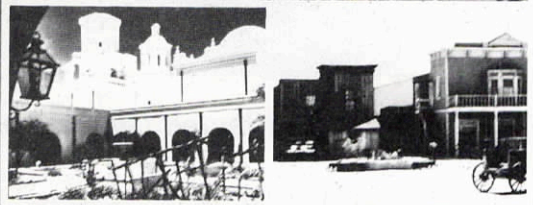
The main disadvantage of working with the computer technology was working against the film's tight time clock, according to Castle. Because Digital was essentially "benchmarking" everything as it went along, certain passes took longer than expected. "And even though the company's computer is the fastest in the world, it's amazing how slow it goes," asserted Castle. Even Whitney said his guess is that the over \$12 million computer will only stay state-of-the-art for another 8 to 12 months.

"The amount of detail and lighting positions and the ability to do landscapes and various live action type sets we tried came in with varying degrees of success and lack of success due to time considerations in our schedule to complete them," explained Castle. Although the fractal landscapes, the "terrain look," reached a good level of complexity, those were the "least successful" images. The most successful were those objects that looked like metal and flew in outer space. "The limitations were pretty much the time and computer power and the problem of how realistic certain things looked given the amount of encoding they would require," said Castle.

Encoding drawings of the initial designs of the objects constituted the first step in Digital's computer generation process. Whitney referred to this stage as being analogous to the set construction phase in traditional

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filmmaking. From Cobb's initial three-dimensional designs, Digital's staff prepared special mechanical engineering blueprints, which were then placed on an encoding table (a workstation), then mathematically constructed by polygons (representing units of detail) in three-dimensional form to be fed into the computer. At this point, the object appeared as a vector, or wire frame image on a display terminal.

"We get out of that a sub-product called the data base — a prop if you will — that gets stored in a file and is given a name," said Whitney. "The data can be called up at any time and is then used in the second stage of the process, the technical directing phase, which concerns itself with what the action is going to be and, secondly, what the look will be."

To determine the action of each individual scene, technicians sat at another workstation which allowed them the optimal ability to build the choreography of the objects quickly and efficiently, based on the storyboards created in-house.

"We made storyboards in the traditional way," said Whitney, "and I'm not sure in the future we would rely as heavily on handdrawn boards. There's a possibility of next time using electronic storyboards, utilizing the equipment we have."

**"Electronic" rehearsal**

Under the direction of Castle, Digital's technical directors previewed and rehearsed the action of each scene electronically on their workstation display terminals. That equipment provides for real-time interactive display of scene motion. The second phase of

the technical directing process involved adding the color, texture shadows and surface reflectivity to the images. This is achieved at another set of workstations where high-quality, high-resolution Ramtek 1,000 line monitors act as "windows into the simulation world."

These windows are driven by the world's most sophisticated supercomputer, the Cray XMP, which Digital purchased in November of last year for \$12.6 million, replacing their previous computer, one the company leased since March 1982, the \$6.5 million Cray IS/1000.

The technical directors were then looking at a fully smooth, shaded faster image on their screens, ready to complete the final step in the process — the filming.

"We took the sub-product — the look — the action and the data bases which all have been married together automatically and loaded those files into the computer," explained Whitney. "And they were given numbers just like they would be right off a script. We lined them all up and they chugged through the computer one after the other."

The Cray XMP executed the computations of each frame; that information was sent out to a high-resolution film recorder and photographed on 35mm Eastman 5247 film stock in anamorphic and VistaVision formats, then sent to MGM Laboratories to be processed.

According to Whitney, the Cray XMP is capable of 1 billion mathematical calculations per second in what is called the "burst mode." Having a multiple memory access capability, the XMP is three times faster than the IS/1000 which is touted at 100 mil-

lion computations per second. "There are probably about 10 XMPs in the world," said Whitney, noting most are owned by government agencies and are placed in locations like the Pentagon. "Ours is the only supercomputer in the world dedicated to computer graphics," added Whitney; the others are used primarily for scientific, military and industrial purposes.

The most obvious advantage of computer simulated special effects over the traditional motion control techniques is that it eliminates the need for large labor forces and the necessity to build models and miniatures and create opticals — thus greatly reducing the cost of production. Motion control, as Whitney sees it, is labor-intensive in that it requires a large crew to construct the necessary physical models. With computer-generated effects, what appears on the screen is what was filmed directly off the computer, with no additional production tools required.

Comparing some past films which have exclusively utilized motion control techniques, Whitney said: "It's evident that in the 2½ years it took them to make 300 scenes they expended about 250-350 man years of effort, whereas in the 12 months it took us to produce 300 scenes we've expended 17 man years of labor."

Whitney believes that if projections are accurate, and the cost of labor in Hollywood is going to increase by another 30 percent over the next two years, so will the manual methods characterized by motion control increase accordingly.

"When we see 'Last Starfighter,' I think  
(Continued)

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## Film

we'll see that motion control was an interim step in the gradual evolution of a true scene simulation process which utilizes computers more efficiently and more directly than motion control uses them," asserted Whitney.

Denault asserted that utilizing the computer-generated effects was so cost- and time-effective over that of traditional techniques that if there was to be a sequel to "The Last Starfighter," the producers would choose the same route. "I think it would even be more cost-effective and faster the second time around because there was a certain amount of R&D work that had to be done," he said, "and nothing would give me greater pleasure than to cash in on some of that."

Given the type of film "Starfighter" is, and the kind of effects it demanded, Denault said it would have been impossible to go with traditional means: "I would have to believe it would have cost another \$1.5-\$2 million if we had gone the traditional route. And time-wise, we'd still be in post-production for another three to six months."

### Computer liberation of EFX

Another advantage of computer generation vs. motion-control is that the objects are free to move "unfettered" because they are not being governed by the laws of physics, gravity or nature. "The audience is going to immediately sense a kind of exuberant fun just in the motion seen on the screen," declared Whitney. "It's non-ballistic motion — pure emotion — it's not motion governed by gravity, and we've never seen that before."

In the past years other films such as "Westworld," "Futureworld," and "Tron"

have used computer-generated imagery, but much of the simulation was seen on monitors as opposed to having been used full screen. Until now, computer-made images in feature films have been incorporated with live action, primarily as minor overlays, on a very limited basis. "Starfighter" marks the first time extended chunks of screen time will be enhanced with high-resolution computer effects.

Comparing "Starfighter" to a film like "Tron," whose intent was to "look" as though it had been computer-generated and not live action, Whitney explained that the number of polygons were far greater in "Starfighter." Scenes in "Tron" had at most 30,000 polygons per frame, he said, while "Starfighter" ran between 750,000 to 1.5 million average detail elements a frame. "So it's got to be a quantum leap over and above anything we've seen before," added Whitney.

Sherry McKenna, Digital's vice president/executive producer, felt that computer simulation aided creativity. "The creative person can now take off his technological blinders and say, 'Okay, I don't have to be restricted by this,' and know the only limit is his or her own imagination — this has got to be the newest art form," said McKenna.

As a former executive producer for Robert Abel and Associates and later co-founder of her own special effects house, Silver Cloud Productions, McKenna has had extensive experience in producing various commercials utilizing special effects, via traditional methods. As Digital's producer of the computer effects for "Starfighter," her concerns as a producer were not altered.

"I'm a producer and the role of a producer is to do a job on time and on budget, and to

make sure the client gets exactly what he had hoped to get," stated McKenna. "For the first time, when we create something with a computer you not only have flexibility, you have control — you get to see all of the elements together in real time."

The only disadvantage she found working with the computer technology was not having all the software and fore knowledge the company had acquired by the end of the project at the start. And software, the body of creative and technical know-how fed to the computer, not the hardware, is the real essence of forging new frontiers in the application of special effects to films, stressed McKenna.

### A touch of Cobb

"Starfighter," was "tailor made" to accommodate what Digital could do with computer imagery. As production designer for both the company and the film, Ron Cobb was instrumental in bridging any gaps between the two entities. He created drawings of objects that exactly fit Digital's specifications for the computer, though he had never designed for a computer before.

A well-known cartoonist, whose film credits include work on "Conan The Barbarian," "Raiders of the Lost Ark" the special edition of "Close Encounters of the Third Kind," and, of course, "Alien," Cobb became involved in the "Starfighter" project while working for Digital. "Being I was on the picture before anyone else, even before Nick [Castle] was selected, it was inevitable that I was sort of establishing the overall look of the film," said Cobb.

Designing as he normally would for a film of this type, Cobb worked closely with Jim Bissel, art director, the production designer on "E.T." who was brought in by Cobb to coordinate the art direction of his set designs. "Essentially I was trying to coordinate the overall visual style of the film which Jim additionally supervised and helped design for the live action sets at MGM," said Cobb.

Unlike the other films Cobb had worked on, "Starfighter" found him also working "intimately" with a number of drafters and encoders who translated his designs and drawings for the computer. The three-dimensional definitions of form in the computer are such that when they operate or move they must have the same capacity to work mechanically as they would in "real" life.

The first object Cobb designed was the main spaceship, the Gunstar — the learning object, as he called it. "The Gunstar became the initial test object," he said. "It took a long time to get it designed and I knew in my mind it had to be translated into a set, so it had to be very practical." He created the initial master drawings and the specialized enlargement and rendering of his shapes and forms into the wire cage drawings that eventually went into the computer were created by Digital's specialized draftsmen.

In addition to designing the look of the Gunstar, Cobb was responsible for the look of the enemy deck fighters, the enemy command ship, a small utility ship used by the "good" guys, the entire Rylon secret base (the exterior and large section of the interior), mountain ranges, planets and huge sky stations for generating a huge barrier in space called the Frontier, effects of city lights over Rylos, deep space effects and the Starcar, a

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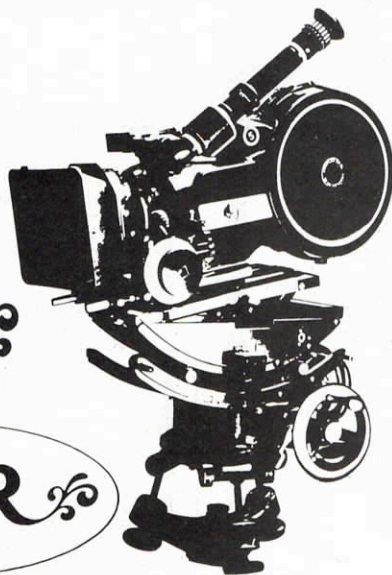
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flying automobile built by Gene Winfield, of Winfield Special Projects, Los Angeles, and used in the live action sequences.

### The "curious craft" of computers

Cobb described his first-time experience of working with computers as a "curious craft" because it was like being an animator, director and art director at the same time: "It's all mixed together because you're manipulating time and space in doing these effects," he said. "I think we've proven with 'Starfighter' that we have to think of the computer not strictly as a freakish, stylized form of filmmaking, but as a viable tool for generating realistic scenes to help tell a story that's far too expensive to render any other way."

Future applications of computer-generated imagery to filmmaking might be in simulating sets for movies with Medieval or Romanesque themes, Cobb projected. "I think it's a tool we can very quietly slot in and convince an audience that what they're looking at is the real thing," he said.

In further creating the overall look of the film, Cobb also provided initial design ideas for the costumes. His designs were implemented and enhanced by Robert Fletcher, the film's costume designer. Fletcher, an international costume designer for stage, film and television, previously worked on all three "Star Trek" features, "Caveman," "The Winds of War" miniseries, European costumes for the "Shogun" miniseries and currently the CBS miniseries for Paramount, "Space."

Working closely with Cobb, Fletcher said he tried to "take off" on what Cobb's concepts

were as well as bring his own ideas forward. "They weren't clear what they wanted so I had to make a lot of experimental sketches," said Fletcher. "They agreed on those and we started the construction work which took a long time because there was so much made in plaster and metal — it was all fantasy."

Fletcher said once he "solidified all the vagueness" he went to work designing all the armor, the helmets (nine different molds), several hundred garments, plus all the small objects worn on clothing like badges, belts and controls.

"We had to invent an entire army, and the Ko-Dan, the evil people, are a very complicated mechanical people that had a sort of plastic armor in blood-red lacquer with a lot of black leather and metal pieces," described Fletcher. Lord Kril, the commander of the evil Ko-Dan tribe, dons a radio-operated helmet which features a monocle with a citing device that swivels in front of his eye upon command. His speaking device, also controlled by radio, comes out of a slot on his helmet. "Those helmets, of which there were two, took us months to do and cost a lot of money — each one about \$8,000," confirmed Fletcher.

Additionally, Fletcher designed clothes for the Alien Congress, various characters from outer space, blue and white attire for the army of "good" guys who were supposed to look "sophisticated and decadent," and civilian clothes which Fletcher described as looking like an evolution of the business suit. "The silhouette is a business suit, but the fabric and the construction of it is much more like a kind of Chinese medieval applique that took it out of the realm of a suit," explained Fletcher.

Preston's character, Centauri, an alien con-artist who wears a human disguise while recruiting Starfighters on Earth, was costumed "extremely elegantly but a little passe," said Fletcher. "His costume resembled the finest tailoring from the 1930s with a sense of a little overdone elegance."

Make-up artist Terry Smith was selected to create the alien appearances. Smith, whose feature credits include "S.O.B." "Every Which Way But Loose" and "Logan's Run" as well as a variety of television shows, has had extensive training in sculpting, mold making and appliance application under the direction of John Chambers. For "Starfighter" he created specialized alien appliances for most of the main characters, which Cobb described, not as simple masks, but as complicated and complex mechanisms with muscle, tentacle, eye and mouth movement.

Castle, who storyboarded all the live action as well as the special effects, spent a lot of time on the sets prior to principal photography to ensure the company would work at a "good clip," given the time restraints. "We averaged over 20 set-ups a day," said Castle. "And we had a good, strong cameraman, King Baggot, who maintained a real high level of quality even on our real lean schedule," which Castle noted was the only major production problem he faced.

### Filming a challenge

Baggott, for his part, said it was the most challenging film he had ever worked on: "We

(Continued on Page 173)



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# Last Starfighter

(Continued from Page 105)



Live-action Lorimar crew for 'The Last Starfighter.'

were dealing with an alien planet to make it look a little different, there were tremendous sets, it was a tremendous special effects film and we were dealing with mattes and blue-screens — everything that could possibly be thrown into a movie was in this."

Using Panavision's anamorphic process for wide screen presentation, and VistaVision's process which shoots horizontally and produces a larger negative, Baggot shot with the Golden Panaflex camera with Panavision lenses as well as the VistaVision camera. Eastman 5293 high speed stock was utilized for the majority of interior and exterior live action sequences, while Eastman 5247 was selected for all of Digital's special effects material as that required a higher quality negative.

"We shot the whole picture anamorphic because we're dealing with something bigger than life, and one of the ways to show that is put it either on anamorphic or 70mm," said Baggot. "It's a little more difficult for the cameraman — but worth it." The difficulty, he outlined, lay in the different kind of lighting required in the anamorphic process which does not allow a cinematographer to work at a "real low key." In order not to lose focus on the anamorphic lenses, a higher amount of foot candles must be used.

"With the new film and high-speed lenses today you're allowed to work at maybe two or three foot candles and with an anamorphic show I was probably working with 30 foot candles," explained Baggot. The lighting had to be precise. Working with many more lights than he normally would, Baggot used some different lighting techniques and spent a lot of time pre-planning because the sets had to be built to his specifications with many lights.

"I bottom-lit a lot of the sets," he said. "I had the floors cut out, had plexiglass put in and used a lot of lights underneath." Using a great many HMI's, he also used a combination of soft lights in front and several hard back lights, and played a tremendous amount of lights off practicals.

Baggot shot all the plates on VistaVision cameras, explaining that the VistaVision process actually "flips" the film in the camera, producing eight instead of four proofs per frame. "It elongates the image which gives you a much better and larger negative and from there they [the lab] reverse the process and print it normally," he said. "It makes for a denser negative."

The Panavision lenses used on the Panflex were exclusively prime lenses, no zooms. The director of photography used many wide angle lenses, which he said was unusual for a film shot anamorphically: "I used them because a lot of the film was spaceships and round objects. We didn't have a lot of square sets so the wide lenses gave it a real wide look with a lot of depth — I didn't see the corners rounding off."

Utilizing as many different camera angles as he could, Baggot said he tried to keep the camera moving and use offset and tight single angles, those not normally used in the anamorphic process. "We used Steadicams and lots of cranes, trying to give as much movement to the film as possible," he recounted.

When simulating the Gunstar landing on Earth, several cranes were set into the bottom half of the spacecraft model (the entire craft was not built due to cost) and smoke and dry ice were used to illustrate the landing. "Our goal was never to show the top half of the ship, which made it a little difficult to shoot," commented Baggot. "We shot night for night out in the desert for about a month. In order to simulate a spaceship landing we had huge cranes with arcs on top and went for a blue light effect, almost a white-out effect — we overexposed almost three stops."

Blue-screening and other visual effects were required to marry Digital's special effects with the live action sequences. Under the direction of Jeff Okun, visual effects supervisor, all titles and opticals were provided by Apogee Inc., Van Nuys, while Van Der Veer Photo Burbank, provided blackscreens compositing, and Pacific Title provided limited effects.

The film gave me the opportunity to do things I normally don't do because you're dealing in an area nobody knows, outer space — the unknown," said Baggot.

## An evolving art

The present application of sophisticated computer-generated effects to full screen feature film production could also be an area appropriately called the unknown, or as Whitney referred to it, "the blackness of space." The experts at Digital all agreed that everything about computer simulation today is in a constant stage of evolution, each new endeavor a major step forward in forging new directions.

Castle said he believed an "enormous leap" was made from going from a "Tron"-like stylization to virtually trying to simulate photography. Whitney drew this analogy: "What we're seeing is a baby who is standing up and walking for the first time. It's taken 25 years to get here and is analogous in my opinion to the initial development of film by George Eastman and the camera by Edison." That, he said, was the culmination of many years of work which led to the analog process of image recording. "We're now on the verge of a breakthrough into digital image recording," asserted Whitney.

While Cobb considered "Starfighter" a "massive project" as a production designer, he also believed that working with the computer made it possible to achieve something

"as elaborate as a 'Star Wars' " in about half the time.

The consensus is that "The Last Starfighter" differs in look from its predecessors because of the extensive use and quality of the state-of-the-art computer technology. Production people involved in both the special effects and live action segments also believe is that the film's "accessible, warm, fun, human" quality will distinguish "Starfighter" from other films of the sci-fi adventure genre, which can tend to be a bit "colder" and more stylized.

"To me the essence of this picture is in the script," said Adelson. "You have characters that you root for and there's a human story. Robert Preston plays this sort of intergalactic music man, who is a fun, interesting character we hoped audiences would want to follow to the stars." And Alex is no super hero, said Adelson, nor does he want to become one — it just happens.

Castle agreed that young people especially will identify with Alex since he is a contemporary person with modern values who, like themselves, deals with real-life issues and conflicts of growing up: having to go through fire to prove oneself; and learning the value of taking risks in life.

"Alex doesn't necessarily want to be a hero and risk his life for things he doesn't think are in his best interest," said Castle. "So he reacts like a normal kid. Also, he has a commitment to his loved ones and winds up defending that commitment."

Castle said he is also interested in knowing how the young people are going to react to the look of the film: "I want to see if a 16-year-old is going to go in there and say, 'Wow, that's really a spaceship.'"

Many film industry folk believe that summer 1984 will be a hot-box of competition, matching closely the sentiments of those involved with "The Last Starfighter." The \$14 million feature will be in release with such films as Lucas/Spielberg's "Indiana Jones and the Temple of Doom," Paramount's "Star Trek III: The Search for Spock," and Columbia's "Ghostbusters," to name only a few.

"But I have the confidence that our film is good enough and entertaining enough to hold up against all those," said gcastle. "Anytime you do a space movie it's going to be compared to Lucas and Spielberg — they're the best at it — they're very talented people. But, I think our movie on its own level will be as fun a departure into this realm."