Scriptwriting: Turning an Idea into a Treatment

STARLOG presents

CINEMAGIC™

THE GUIDE TO FANTASTIC FILMMAKING

$1.95
85P
Number #16

Building Your Own Camera Crane

"Asteroid" Super-8 Spacemen

A Basic LED Circuit

Careers: Frank Van der Veer

Animated Flat Art Explosions

CINEMAGIC/SVA Contest Winners

Above: A luckless stop-motion astronaut is pummeled into the ground by a murderous stop-motion alien creature in Jeff Bloomer's latest film, ***Just for the Sport.*** See Producers' Bulletin Board on page 10.

Above: Bob Audee and Bonnie Meier pose on the Zac Ornstein ship cockpit set from Stephen Parady's film, ***Asteroid,*** which won third prize in the Super-8 category of this year's CINEMAGIC/SVA Short Film Search. The set was modeled after the cockpit of the Space Shuttle. See the profile "Super-8 Spacemen" on page 12. **Left:** A blow-up of a special effects sequence from ***Starlog's Birthday Fantasy*** illustrates the effect produced by animated flat art explosions. CINEMAGIC publisher Kerry O'Quinn created this twelve-frame explosion sequence for the film, which he directed. See the article on how to create this effect on page 22.

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CINEMAGIC
THE GUIDE TO FANTASTIC FILMMAKING

Issue #16

Published by
O'QUINN STUDIOS, INC.
475 Park Ave. South
New York, NY 10016

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About the cover: The CINEMAGIC/SVA Short Film Search trophy is shown with a film strip depicting some of this year's winners and highlights from past issues of CINEMAGIC. Cover photo by John Clayton.

Editor's BENCH

The Death of Super-8

It was not too long ago that I received a number of urgent letters asking me to check into a rumor about the future of Super-8. It was said that Kodak was planning to allow the format to go belly-up by suspending production of Super-8 film. The big boom in home video equipment sales being the reason for Super-8's supposed demise.

Well, have no fear. Kodak is *not* suspending production of Super-8 film stock. They *are* suspending production of Super-8 cameras, however. The Kodak spokesman explained too many other foreign and domestic camera companies can design, produce and sell Super-8 cameras better and more economically than Kodak and that Kodak's principal business is film stock. Kodak gets into the camera business usually when they are trying to introduce a new film format, such as the Instamatic of a generation ago and the new Kodak disc system which was introduced in January.

It is also true, however, that no one in the industry doubts that the ease of operation and immediacy of home video systems will ultimately replace Super-8 as a format for home movies. Rather soon, too; in fact, imminently, I would say. Portable light weight systems such as Technicolor's ultra-light, ultra-small ¼-inch cassette format are showing the way. It is *not* true that home video will imminently replace Super-8 as a format for home fantasy filmmaking. Notice the distinction here: home movies versus filmmaking—fantasy filmmaking in particular. By home movies I mean sequences of Aunt Ethel washing the family St. Bernard in the backyard or scenes of Grandma and the kids hanging stockings on Christmas Eve. By filmmaking, I am talking (God help me) about art, and to the readers of this magazine about fantastic art.

A good percentage of fantasy filmmaking involves special effects. Most of the effects described in CINEMAGIC involve the ability to animate (lasers, clay creatures, explosions, etc.) on a frame-by-frame basis. Such capabilities are not available to home video users, nor are they imminent.

So what can you do, special effects-wise, with current home video equipment? Anything that you can do in Super-8 that can be done in-camera, at speed and in one pass. So. What does that leave us with? Video owners can use beam splitters, foreground miniatures, perspective tricks, "live" effects and anything else that doesn't require one-frame-at-time animation.

Aside from effects the other big problem is editing. In Super-8 editing is a simple matter of cut and splice. Video editing must be done electronically or not at all.

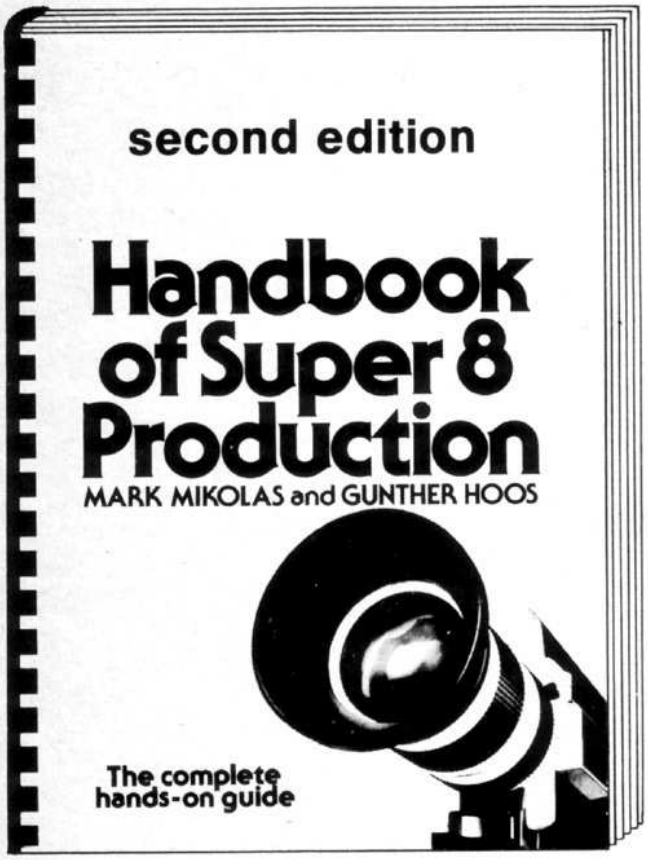
Still, video does have a place in CINEMAGIC, after all not all fantasy films involve animated special effects and some video users may be able to obtain the use of electronic editing equipment or may have the use of two video recorders to do their own copy-edits. Then too, video is a great accessory. It's very handy to have your finished film transferred to video cassette for informal screening on your home TV. True, the quality will not equal good projection, but the convenience may outweigh that consideration in some instances.

As far as CINEMAGIC is concerned, from time to time you will see news of new video products, cameras and recorders and we will try to keep you up to date on the progress in the field. When effects techniques can be adapted to video users, we will try to make a point of it. Certainly, all of the general production techniques articles will apply. In any case, if you were planning on selling your Super-8 camera to an antiques dealer . . . don't.

—David Hutchison

THE GUIDEBOOK FOR FILMMAKERS

The authoritative guide to Super 8 is back in a newly revised edition. With the latest equipment and prices, the latest systems and techniques for serious users of the Super 8 medium. And ... a sturdy spiral binding!



Handbook of Super 8 Production—the book that gives you Super 8 at its best—is back in a newly revised edition. Gunther Hoos and Mark Mikolas have brought their complete hands-on guide up-to-date with the changing technologies of Super 8 production—all the latest equipment, systems, techniques and prices are here, in more than 300 pages of information on everything in Super 8. And now, a sturdy spiral binding to make the Handbook even handier!

You've read about Gunther Hoos and Mark Mikolas in Industrial Photography, Audio-Visual Communications and Super 8 Filmaker, where their reports have helped thousands of serious Super 8 film producers improve their craft. But have you seen the reviews for the Handbook?

"The Handbook's 312 pages contain just about everything there is to know about the craft and business of Super 8 filmmaking. It deserves the attention of anyone seriously interested in the present state and future prospects of professional Super 8 film production."—Matthew Fleury in Millimeter.

"It's only the biggest, longest, heftiest, fullest, most firmly packed compendium of information about the gauge ever to greet our unbelieving eyes."—Del Hillgartner in Filmmakers Newsletter.

"The most comprehensive book on Super 8. The authors, who are among the most knowledgeable of Super 8 filmmakers, describe the equipment that is available, tell how to select what's best for an individual's needs, and describe how to make inexpensive substitutes. More importantly, they detail how to use the equipment to its best advantage. It is an amazing compendium of information, much of it unavailable elsewhere, making this a book that is a must for any serious Super 8 filmmaker".—Elinor Stecker, Camera column, The New York Times.

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Everything There Is To Know About Scriptwriting For Short Films In Three Virtually Impossible Lessons

Lesson Two: Turning a Story Idea into a Film Treatment

By DAVID HOUSTON

We want to make a 15-minute space extravaganza as an exercise in the animation of miniature space ships; and we hope to entertain an audience for longer than it takes them to register the fact that we *can* animate space ships. In other words, a private motive, animation, has to be converted into public entertainment—has to be made into a story. (That's what Lesson One, in the last issue of CINEMAGIC, was about.)

We have this story:

Two planets are at war. The daughter of the commander of one fleet loves the son of the commander of the opposing fleet; and the kids have a plan: they will change places and become hostages compelling their fathers to sit down and talk peace.

That needs to be turned into a shooting script.

Why? Why not just bat out a few lines of dialog, build the necessary sets and wing it? Because with a detailed script it is possible to see a movie in your imagination and correct errors and shortcomings before they are made. And the more detailed your script, the more detailed can be your budget and schedule.

An approximation versus a blueprint. It's the difference between doodling and drawing a work of art, between being in control and at the mercy of accidents, between knowledge and ignorance.

First, do a lot of thinking and note-taking about your story. Weigh what you have in terms of the fundamentals of dramatic writing:

THEME is the overall meaning, the most abstract statement, the moral of a story. In practical terms, it is the unifying factor, the aspect of storytelling that maintains the integrity of your tale, that guarantees that everything about the movie belongs in *that* movie and no other. In our case, a likely statement of the theme is: *war is stopped by courage* (the action of the kids) *and reason* (what they force their fathers to do.) Anything that contradicts that idea or fails to contribute to it has no place in the script.

PLOT is the logical sequence of events that demonstrates the theme through the actions of the characters. (More on this shortly.)

CHARACTERIZATION is the identity of the participants in the drama. In almost all horror, science-fiction and fantasy films, plot takes precedence over characterization (and in most other kinds of movies and books, too). **Characterization is derived from plot.** A character *is* what he *does*.

We have two space-fleet commanders who are strong-willed, decisive, and brilliant (obviously, or they wouldn't be commanders); who love their children dearly (or the kids' ploy won't work) and are therefore "good" people; but who have made serious errors (or there would be no war) and yet are willing to sacrifice their lives by personally leading this battle to the death (or they would be back home in an office) and are, it follows, idealistic and dedicated.

The kids, our Romeo and Juliet, are informed enough to pilot a space shuttle (so they're not *too* young); and they're clever enough to have collaborated on this daring plan. They're deadly serious (because deep thinkers usually are) and benevolent enough to believe that once cornered, their fathers will behave rationally. Their self-esteem is high (humble people don't take risks like the one the kids have in mind) and their confidence shows (it's something no one can hide). We probably won't need this, but they also had opportunity to meet, which means, perhaps, that they have been at school together on some neutral planet; and that makes it likely that they share certain skills—in astrogation, perhaps, or encoded communication. And so on. (Keep referring to Rule Nine of Lesson One.)

STYLE is the way in which the details of a story are presented: the wrapping paper and ribbons. In a collaborative effort such as movie-making, it is important that all contributors agree on style. If the space ships are NASA realistic, so should the dialog be. But if they're sweeping fantasy projectiles, the dialog can be more fanciful. If costumes have a *Camelot* quality and the music score is romantic-classical, the dialog will be more literate and dignified than if the costumes are plastic and the score is rock.

In most cases, *plot* holds the key to the entertainment value of a work—above them, characterization and style. Plot forces the audience to pay attention to subtly asked and answered questions. If the questions intrigue an audience, they'll hang in there till the answers come.

Plot has components that can be isolated for discussion. They are:

COLLISION—in which opponents in a conflict come together.

CONFLICT—in which contingent's goal is another's obstacle.

DEVELOPMENT—in which the conflict worsens as various aspects of it are explored in action.

CLIMAX—in which the conflict must be solved or complete disaster results.

RESOLUTION—in which the final goal is attained or lost forever, and the ramifications are revealed.

Many stories are plotted in exactly that sequence, with a major scene alotted for each of the five components, in the order listed here. Sometimes *collision* and *conflict* happen in reverse order or simultaneously, and *development* is something of a catchall that takes in as much or little action as a given story warrants. *Most* of a Burt Reynolds car-chase movie is *development*.

MYSTERY AND SUSPENSE are techniques of planting the questions and answers that manipulate an audience's curiosity. MYSTERY results from an unanswered question. SUSPENSE is due to an answer that sets up an inevitable (or apparently inevitable) event. The trick is to tell an audience no more than it needs to know, but to tell them enough so that they know what they are watching, why it follows from what went on before and what promises to transpire after. *Every* story that holds an audience's interest has ample mystery and suspense—*Bambi*,

The Godfather, Star Wars, an episode of *All in the Family, Close Encounters, Casablanca*—all of 'em, not just tales of crime and intrigue.

Keeping all of the foregoing in mind, next sketch out the entire movie as you are beginning to see it unfold in your head. Be brief, but include all you know at this point in broadest terms. What you'll end up with is equivalent to the professional writer's Film Treatment, which he and/or his would-be producer will show would-be investors, to give them an idea of what the unmade movie will look like. Even more importantly, the Film Treatment is the first statement of the whole story, the "bare bones" finally "fleshed out"—to use movie industry lingo.

If you haven't come up with a title you like by this time, tack on a working title that seems to be in the right direction. (If our heroes were robots we might call it *Rm-E-O and J1-E-8;* but no, we have to keep thinking.)

Working Title:
Romeo and Juliet in Space

TREATMENT

Titles are against vast outer space.

Large reddish ship comes into view, followed by several white fighters firing upon it. Rays shoot out from the big red ship and demolish the white fighters, one of which crashes into the huge red vessel. (**Collision**—literally and figuratively.)

Inside the red ship. Most surfaces and costumes contain red. Effects of the crash: the control room lurches.

Red Commander says, "Ready the next attack force . . ." and camera moves on past him to reveal a hidden cabinet, the door of which is being pushed open from inside by a delicate hand. Girl stowaway climbs out and sneaks to exit door. Unseen, she looks at the Red Commander and thinks (voice-over): "If this doesn't work, Father, you're going to have a hell of a lot to forgive me for!" (**Conflict**—between Girl and her Father.)

(Note the **Mystery** operated until she spoke and gave us enough information to start **Suspense** working.)

Control room lurches again as Girl exists.

In space, white fighters are getting through the red ship's defenses, bombarding the surface of the huge craft. Camera holds on one white fighter: it is crippled and zooms away from the battle. Camera stays with it, singles it out as it disappears around the limb of a beautiful planet. Picks it up again as pilot's voice (radio-filtered) is heard: "Crescent-three approaching, disabled, request docking—"

Suddenly a flock of red flighters bears down on him. "Get out, Commander!" the pilot yells. "There's got to be a dozen fighters; they must know our location! Don't let the bas—!"

Rays hit his ship from three directions, and he is vaporized.

Cut to interior of white command ship, where a communications officer removes a headset and says sadly to the White Commander: "They got him, sir." (**Development**—specifically, it establishes that people are really dying: it's dangerous out there!)

White Commander says to another man standing by him, a boy really—too young to be a soldier: "I was crazy to let you come on this mission, son. Please go to the lifepod bay and be ready to abandon ship . . . so I can stop worrying about you and get on with this damnable war." (**Characterization**—loves his son, knows his duty, regrets the bloodshed.)

The boy nods and says, "Good luck, Father." As he departs, he grabs a plastic case from a locker, stealthily, and checks his watch. (**Conflict**—Boy has secrets from his Father. **Suspense**—we guess that it might have something to do with Girl's plan.)

In outer space, the dozen red fighters attack the white command ship. Ray cannons on the big ship knock out several fighters; three white fighters join in and knock out a few red ones. There's a major hit on the command ship.

Cut back inside. The Boy—suited out for space—runs down a lurching corridor, debris falling. At the end of it signs say the life-pod bay is to the right, the shuttle bay is to the left; he runs left.

In space, the skirmish is about over; three red fighters zoom away, evading cannon fire; a single white fighter fires at them and destroys one.

Another angle: the belly of the command ship. At a launch bay there is a flash of light, and a tiny non-military vessel shoots away. (This is the start of the *Climax*—whatever the kids are up to, they've started doing it.)

In the highly cramped capsule-like cockpit of the shuttle, the Boy opens his mysterious plastic case and sets dials and switches on the panel inside. He tells it he is on his way, and Girl's voice comes over to say she has instructed her ship's computer to consider his craft friendly and open shuttle-deck-C doors.

In outer space, camera moves with two red fighters (the two that were with the

ART: HOWARD CRUSE

ART: HOWARD CRUSE

third that just blew up) who spot the shuttlecraft. "Hey," says one pilot in voice-over, "what's that?" The two take off in pursuit. But the shuttle is too little and too fast. "I've lost it," a red pilot finally admits. "Me, too," answers his comrade; "smallest craft I've ever seen. Maybe it was just a garbage module."

(Note: **Believability** has not been discussed because it's too obvious an issue; but a word of caution: don't ever say to yourself, "That's great but it's not believable; oh well, I'll solve it later." It won't be any more believable later than it is now, and later you'll have at lot more work to do replacing the bogus element. Solve it as soon as it occurs to you. The shuttle has to be so small as to be almost invisible, or it would never manage to approach—much less enter—the enemy command ship.)

At the giant red command ship, the miniscule shuttle (looking like nothing more than a dim moving star) enters a shaded docking port. (**Suspense**—this is it; **Mystery**—but what's going to happen?)

In close shots (so an extensive shuttle-bay set won't be needed), Boy emerges from shuttle door, ray-gun in hand. Girl's whispered voice: "It's okay, I'm alone."

Boy holsters gun, turns and takes Girl into his arms and kisses her passionately, quickly, obsessively (he may never see her alive again), and then he ushers her into the shuttle. (**Surprise**—but in the next instant, audience will begin to suspect the whole truth about this mission.) He tells her: "It's pre-programmed for the return flight. Good luck," he says as he closes door behind her.

In outer space, the little white star bolts away from the big red ship. (Note: at this point, all of the audience's questions have been answered, or can be guessed at, except: will it work? In other words, the story's now thin on mystery and plot, and this is no time to pad or draw out the action—

unless we have a twist ending, a punch line, or some kind of extra "oomph" for punctuation at the end.

(A hundred to one, the audience *feels* at this point that the kids will succeed. It would, therefore, be surprising to see it fail—but would that surprise be worth the emotional disappointment? I don't think so. So our extra something will be concerning *how* they succeed, not *whether.)*

Because of their courage and daring, their love for each other, and their fight for peace, the kids are highly sympathetic characters—whether they're acted by amateurs or professionals—and their jeopardy is at a climactic height in the story. So let's kill her. Or make it seem that way.)

Boy walks to guard in corridor and surrenders. Guard says, "Gods alive!" (or some other equivalent of "Holy shit!") and Boy says, "Tell your commander I'm his hostage, voluntarily." Guard says, "But you're—!" and the boy nods with a crooked smile.

In outer space, the two red pursuit fighters vow not to let the little shuttle escape them again, and they charge toward it, lasers blasting.

Back to Red Command Ship, Boy says to Girl's Father, "I'm not a fool, sir. By now your daughter is offering herself as a pawn, just as I did. We want you to talk things out . . . not shoot them out."

But just outside the White Ship's docking bays, the red fighters swoop down on the unarmed shuttle and blast it to bits. (MUSIC—is suspended while the debris radiates: will melody come back tragic or triumphant?)

Triumphant. In another shot we see a tiny figure (miniature) in a jet-pack space suit entering the docking bay: she bailed out in time.

In the Red Ship, a light on Boy's watch flashes three times. He tells Girl's father: "She's there, sir, and safe."

Red Commander slams his hand onto the communications console and growls into it, "Cease fire!"

Picture, close up, of Boy's face, he slowly smiles. Freeze frame, with Boy's face on left of picture. Right half of screen (matte) is moving picture that shows White Commander hitting *his* communications button and saying, "Cease fire!" Close up on girl's face as *she* slowly smiles. Freeze frame.

End credits roll over their faces

THE END

Next issue: Lesson Three—Turning a Film Treatment into a Shooting Script. CM

David Houston

David Houston was STARLOG Magazine's first editor in-chief, and, later, a frequent contributor. He is the author of numerous novels including Alien Perspective, Gods in a Vortex *and the six* Tales of Tomorrow *books from Leisure Publications. He has turned novels into screenplays and screenplays into novels, and was story consultant for several recent films. He wrote and directed the TV special* They Went to the Stars, *about live science fiction drama during television's "Golden Age." His screenplay* Invaders At Ground Zero *is in preproduction for filming later this year. His first "exhibited" movie was an 8mm super-extravaganza made eons ago in high school.*

Producers' BULLETIN BOARD

Please forward announcements of film projects in current production or near completion to: CINEMAGIC, c/o O'Quinn Studios, Inc., 475 Park Avenue South, New York, NY 10016. Please include a photograph of some phase of the production if possible.

Attack of the Video Games. Comedy. Mankind will pay a heavy toll for putting slugs into them and kicking them at will. Now they will have their revenge! Producer/ Director/ Writer: J.R. Le Barre. Cast: Scott Lowe, J.R. Le Barre, Leo Le Barre and Jeff Engelund. FX include: rotoscoping, blood and lasers, Super-8, color, sound. Running time: not established. (J.R. Le Barre, 154 Castillion Terreace, Santa Cruz, CA 95060.)

The Terror. A lightning bolt causes a recently buried cemetery resident to rise up and wreck havoc on the unsuspecting world. Can it be stopped? Producer: AGAtomic Films. Director/ Cameraman: Greg Lontkoski. Cast: Scott Kauffman, Charley Stanley, Karl Smelz and Greg Lontkoski. FX include: animation, mattes, double exposures and superimposed titles. Super-8, color, dubbed sound. Running time: 10 minutes (Greg Lontkoski, 6390 Townline Rd., North Tonawanda, NY 14120.)

The Ripper. A visualization of the song by Judas Priest about Jack the Ripper. Producer/ Director: David Pisani. Cast: Gregg Pisani and Brian Pulido. Filmed on the same location as the soon to be released *Annie.* Super-8, color, musical soundtrack. Running time: 3 minutes. (Questar Productions, % David Pisani, 280 Jersey Ave., Elberon, NJ 07740.)


The Ripper

Beyond Evil. A group of teenagers gather around a pool to cool off in the summer heat and the horror begins. A young man who is accidentally pushed into the pool and drowns comes back from the dead, goes on a bloody rampage. Producers H&H Films. Directors/ Script: Ken Harris and Chuck Harrison. Make-up: Chuck Harrison. Cast: Chuck Harrison, Ken Harris, Susan Gelbart, Judy Hadwyn, Jimmy Dresser, Bonnie Harrison and Rene Adkins. Super-8, color, silent. Running time: Approximately 15 minutes. (Ken Harris, 166 Shadow Moor Ct., Martinez, GA 30907.)

Space Graveyard. A young space explorer on a routine mission discovers a gigantic spaceship. Will he be able to uncover its dark secret? Producers/ Directors/ Writers: Greg Lanz and Guy Gilray. FX include: miniature spaceships, glass paintings, stop-motion animation and original music. Super-8, color, sound (Apple Tree Productions, % Greg Lanz, 15702 S. Neibur Rd., Oregon City, Oregon 97045.)


Space Graveyard

Just for the Sport. An astronaut lands on an alien planet and encounters bizarre creatures. Surprise ending. Producer/Director/Writer: Jeff Bloomer. FX include: ball-and-socket latex animation models, Spacecraft model animation, double exposures. Running time: 3 minutes. 16mm, color. (Jeff Bloomer, 10359 Grafton, Carleton, MI 48117.)


Just for the Sport

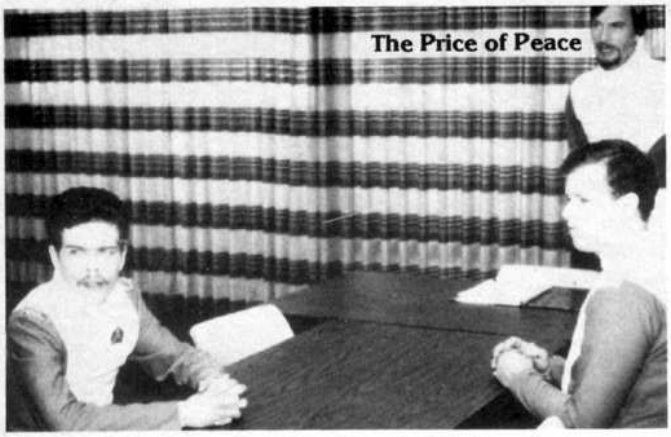
The Gift. A Christian film about God's love for mankind and the importance of Christ's Crucifixion. Producer/ Director: John Martin. Script: Oscar Wynn. Cast: Pamela Shipwash, Joe Joudan and Linda Boise. FX include: special effects make-up for Jesus' Crucifixion, angel sequences, Earth as seen from outer space and superimposed titles. Super-8, color, sound. Running time: approximately 30 minutes. In production since July 2, '81. (Exodus Film Productions, % John Martin, 1920 West River Rd., South Elyria, OH 44035.)

Renegade. The ultimate game of cops and robbers. A space age convict seeks refuge from Law Force officers in the space port of Garmen. Producer: HMH Productions. Directors/ Writers/ FX: Ed Halbig, Kenneth McConnell and Jason Herrington. FX include: matte effects, foreground miniatures. Live action. Regular-8, color, silent. Running time: 15 minutes. (HMH Productions, % Jason Herrington, 614 Camden Rd., Altamonte Springs, FL 32701.)


Renegade

Fanzines. The film uses FX and narration to illustrate the how's and why's of fanzines and was made to promote our own fanzine, *Demons of the Mind,* at local conventions. Producer: Little Bray Studios. Director: Bob Tinnell. Super-8, color, sound. Running time: 3 minutes. (Little Bray Studios, % Bob Tinnell, P.O. Box #1, Rivesville, WV 26588.)

Macabre. Horror story about a masked psychopath — who is actually death himself — on the rampage, killing off a group of teenagers one by one. Many shocking effects. Gore toned down greatly; most of the violence is suggested rather than shown. Surprise ending. Producer/ Director/ Writer: Shawn Sheridan. FX: Shawn Sheridan. FX include: blood and some make-up effects. Super-8, color, silent. Music soundtrack. Running time: approximately 45 minutes. (Shock Productions, % Shawn Sheridan, 3827 Tilden Ave., Culver City, CA 90230.)



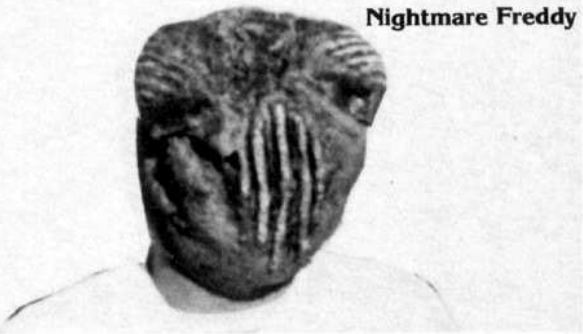
The Price of Peace. Based on Gene Roddenberry's view of life in the 23rd century, it follows the first mission of Captain William Drake of the U.S.S. Orion to an intergalactic peace conference on the planet Aldeberon. Producer: Quantum Leap Productions. Director: Steve Anderson. FX: QLP Effects. Cameraman: Randall Copper. Miniatures: Danny Atrasca. Sound: Chuck Larrieu. Cast: Ray Benson, Steve Anderson, Alan Barth, Andy Armstrong, Tully Buckner and Georgia Barnes. Super-8, color, sound. To be transferred to video tape. (Quantum Leap Productions, % Steve Anderson, 47 LaCrescenta Way, San Rafael, CA 94901.)

The Cross. Adventure. The story of two boys' search for the cross of holiness. Once found, they go to the underground lair of one of the Devil's Vicars to confront him and try to destroy him. Do they have enough power? Possible start of a series. Now in preproduction. Producer Director: Andy Vogel. FX include: rotoscoping, pyrotechnics, life size sets, superd titles and makeup. Super-8, color, sound on separate cassette. (Dark Fantasies, Andy Vogel, 6536 Ripplewood Lane, Cincinnati, OH 45230.)

The Mortal Probe. A colony of humanoids targets Earth as a possible home. They send down a scout probe only to find out that they're in for a big surprise! Producer: U.T.U. Productions. Director/ Writer: Dave Kramer. Original concept: Henry Byorum. Models: Dave Kramer. Optical FX: Dave Kramer and Henry Byorum. Computer graphics: Computerland. Titles: Henry Byorum. FX include: computer readouts, 2 spacecraft miniature interior sets, several beam-splitter shots, superimposition, a robot prop. Super-8, color, sound. Running time: 7-14 minutes. (U.T.U. Productions, Dave Kramer, 5263 Carriage Lane, Santa Rosa, CA 95401.)

Nightmare Freddy. Bizarre mixture of horror and humor about a teenager whose nightmares actually occur as he's dreaming them. His horrible dreams have claimed the lives of more than one hundred people in a small California town. Can Professor Jennings Van Ponder and Sheriff Turgeon "cure" Freddy before he commits the ultimate act of destruction? Producer: Rat Productions. Director: Mike Lyddon. Cast: Richard Nelson, Al Williamson, Chris Montoya, Mike Lyddon and John Woods as "The Shadow." FX include: prosthetics. Super-8, color and black & white. Running time: 8-10 minutes. (Mike Lyddon, 42901 N. Chicory Ave., Lancaster, CA 93534.)

Nightmare Freddy



CINEMAGIC BACK ISSUES

#1—Backwinding Super-8 Film; Foreground Miniature Technique; Aerial Brace Construction.

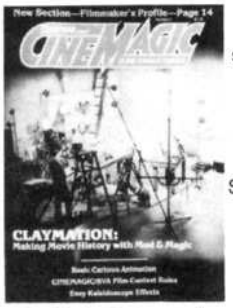
#2—Spaceship Model-making; Blood Makeup; Smoke Generator; Light Beam Effects; Making an SF Logo.

#3—Robot Construction; Developing an Animation Style; Fluid Art Animation; Electronic Special Effects.

#4—Aerial Image Optical Printer: Construction; Wire Armatures; A-B Rolling; More Electronic Special Effects; Fog and Mist Effects.

#5—Aerial Image Optical Printer: Usage; Widescreen Super-8; Slit Scan Effects; Gleaming Eyes for Stop Motion Models.

#6—Amazing Electronic Gadgets—Cheap; Bring Your Alien to Life—Latex Masks; Basic Editing Techniques; Invisible Man Effects.



#7—Basic Cartoon Animation; Claymation; Kaleidoscope Effects; Profile: Santostephano.

#12—Makeup Magic—Latex Appliances; Rotoscoping; Zero Budget Ray Gun; Profile: Barnes and Gilger.

#13—Slit Scan; Creating UFO "Lightships"; Model Interiors; More Electronic Special Effects; The Saturn Machine; Profile: Borucki.

#14—Storyboarding; Sound Effects Generator; Miniature Devastated Cities; Charles Jones' 16mm Space Epic; Profile: Jerry Parisi.

#15—Script Writing; Miniature Lighting; Electronic Special Effects; Careers; Super Depth in Dioramas; Profile: Ralph Miller.

#8—Video Tape Transfers; Reverse Filming Effects; Lab Services; Profile: Vitous and Antonucci; *Clash of the Titans* Preview.

#9—Animating Pogo; Lithographic Titling Effects; Sets on a Shoestring; Profile: The Langley Punks.

#10—Mastering Mattes; Zero Budget Sets; CINEMAGIC/SVA Awards Night; Building a Super Soundtrack; Pen Set Ball-and-Socket Armatures.

#11—Glass Shots; Miniature Explosions; Figure Animation; Bloody Hair Hunks; Profile: Koch and Lohr.

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PROFILE

Super-8 Spacemen

PHOTOS: STEPHEN PARADY

By JOHN CLAYTON

This year's CINEMAGIC/SVA Short Film Search brought many talented filmmakers to our attention. However, of all the outer space adventure films entered in this year's contest, only one was a winner. That film, *Asteriod!,* was produced by a Massachusetts based group who call themselves Paradox Productions and are headed by Stephen Parady.

Asteriod is set in the year 2049, when man's search for mineral resources has led to the mining of the asteroid belt. A small-time, independent miner named Zac Ornstein makes a find and discovers that half of a dumbell-shaped asteroid is made of iron. Unfortunately for Zac, the Gen Met company—a large conglomerate with many mining vessels—has been keeping an eye on him and is determined to beat him out of any claims. They see Zac set down on the asteroid and so they land on the opposite side, jamming his claim transmission and trying to take the asteroid as their own. The battle for the asteroid is on, pitting Zac—who used to work for Gen Met—against his former employer.

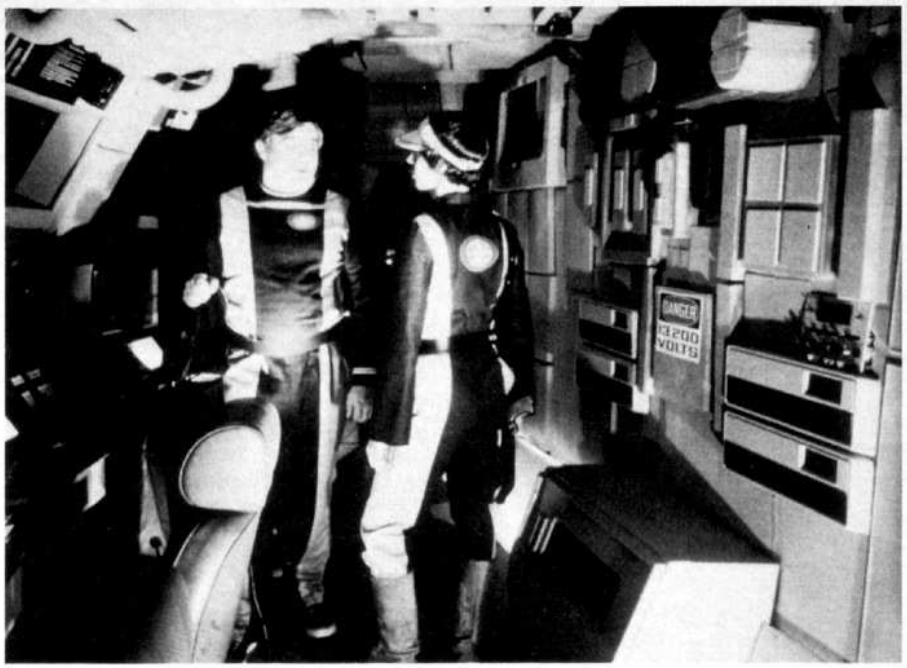
"We made the film specifically to enter it in the CINEMAGIC/SVA contest," Parady begins. "We wanted to make a film that would be a showcase for our special effects talents, so naturally a space adventure film came to mind. We're not very strong when it comes to dialog and characterization, so we decided to make the film as action packed as possible. It's sort of a western shoot-out in outer space, like *Outland,* but we started making the film before we saw *Outland.*

"We spent about a month and a half on pre-production," Steve continues. "That included writing the script. We had a rough idea of what we wanted to do when we started, but our pre-production meetings included talking about the script and refining it. I was taking a scriptwriting course at the Boston Center for Adult Education at the time. We weren't totally satisfied with the script when we started shooting, but we figured that we better start shooting in order to be able to enter it in the CINEMAGIC contest.

"We budgeted the film at eight hundred dollars," Steve reveals. "We didn't keep tabs on all of the expenses but I think that we came pretty close to making the film on that budget. A lot of our expenses went into investing in equipment that we can use in future productions—lights, materials and other items that will come in handy for making other films. We had about fifteen people who we could count on who made major contributions to the film.

"I'm also a modeler," Steve explains. "I designed and built all the models for the film. Both ships were constructed from scratch with the idea of using them in the film in mind. The Gen Met ship was inspired by some of the shapes we found to model it with. Zek Ornstein's ship was designed with the idea of making it loosely resemble a pack mule, like the old-time prospectors used to carry their supplies on in the gold rush days. The reference may have been lost on the audience, but I was trying to convey the idea that Zak Ornstein is a futuristic prospector. The model of Zak's ship isn't my favorite model—from a modeler's point of view—but it was built in one day and it serves its purpose. The Gen Met ship was built over a period of three weeks.

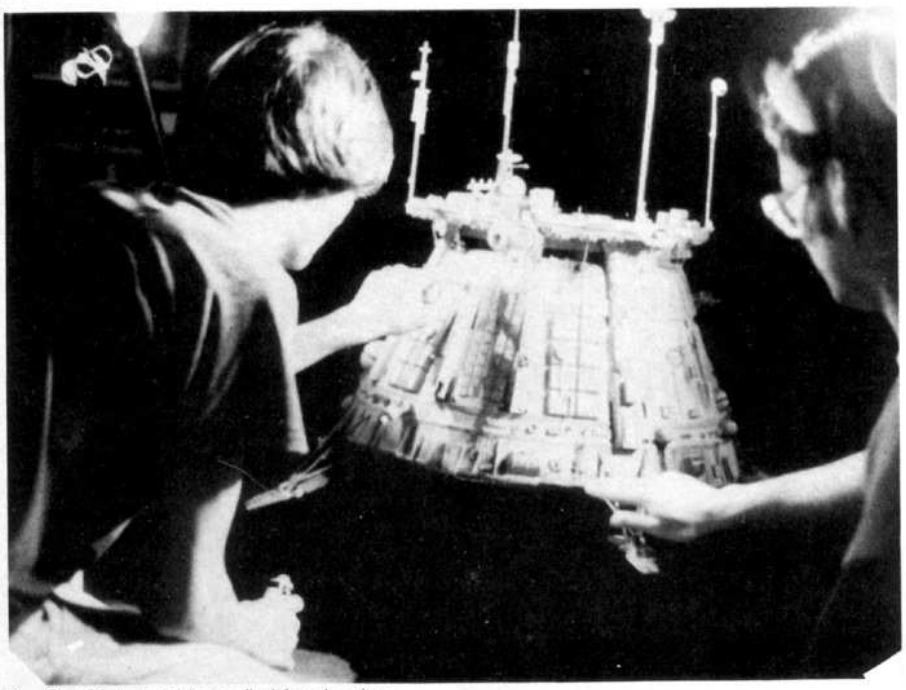
"The interior cockpit set for Zac Ornstein's ship is a pretty fair replica of the Space Shuttle's cockpit," Steve reveals. "I'm an active member of the Boston chapter of the L5 Society—an organization that promotes space exploration. I exhibit my spaceship models at local L5 and science fiction conventions. The cockpit set for Ornstein's ship was originally built for another movie I made, entitled *The New Frontier*. I got a hold of the plans for the Space Shuttle's cockpit and followed it as closely as I could. We modified the set for *Asteriod* so that it wouldn't be exactly the same as it was for *The New Frontier*. We built a mock-up of the outside of the nose of the Ornstein ship so we could show the characters looking out of the windows and then cut to miniature figures inside the model. The inside of the nose mock-up is actually the cockpit set, and the windows match so we can film from either side.



Konrad Schoen and Patri Pugliese on the Gen Met set.

"There are several instruments in the cockpit set that display computer graphic read-outs. I asked my friend, Jim Leatham to design the computer graphics and I told him what we needed. He programmed his Apple II computer to create the graphics and run a Super-8 camera to film them off of his TV monitor. (A future issue of CINEMAGIC will feature an article on Leatham's computer graphics technique.) He also programmed the computer to operate a filter wheel through which the camera photographed the computer generated graphics. That's how we got colored graphics off of a black-and-white monitor. Jim set up the program and then went to sleep while the computer ran the camera and filter wheel to film the graphics. Some of the graphics took up to thirteen hours to film. The computer isn't capable of generating the graphics in real time. It generates one part of a sequence, clicks off a frame of film, and then goes on to generate the next part of the sequence. We took the Super-8 film and rear projected it onto the cockpit monitors, which used drafting mylar for rear projection material. The effect produces complex computer graphics which appear to be generated on the cockpit monitors in real time.

"I'm fortunate to live in the Boston area because there are many high tech companies in the area," Steve continues. "We scavenged the trash bins of many of these companies to get some of the components for our sets. We got all sorts of styrofoam packing material, old computer reels and lots of other high tech looking paraphernalia to enhance the realism of our sets. I also found a bunch of 8-track cartridges in the trash of a recording tape manufacturer and opened them up and took out the insides to use as knobs. Some of the knobs on the sets are ordinary bottle caps. The Children's Museum in Boston has a resource center which also proved to be a valuable source of materials for building our sets. High tech companies and other manufacturers donate material that they would normally throw away to the resource center and you can go in, pick out what you want and fill a shopping bag full of materials for $3.00. You can get by without high tech materails if you have to by building everything out of cardboard and using odds and ends, but having access to these materials was of great value to us. Each set took us about a month to build in our spare time."


The Gen Met model is readied for shooting.

Bill Rudow designed and built many of the control panels on the Gen Met bridge set. Bill, who acted as associate producer on *Asteroid* also helped on the special effects and appeared in the cast. He talks about his technique on designing control panels: "I wanted to get as realistic a look as possible for the control panels," Bill explains. "Steve and I were able to take a tour of a Navy guided missle cruiser and get a first hand look at the ship's combat control center. It was very impressive. There were all sorts of colored lights and the whole room was dimly lit. It influenced us quite a bit. I got a few color slides of the ship's combat room that we used for research and we rear projected one of the slides onto the back of the Gen Met set to make it appear to be bigger than it actually was. We made panels of white squares and white Letraset that we attached to black construction paper and backlit. We made rules on the panels with black chart tape to create imaging rader panels and other high tech instruments. We tinted some of

the white areas with colored tint dye to add color.

"The consoles were first framed in wood and then covered with foamcore and painted," Bill continues. "We tried not to use cardboard for any of the visible parts of the set because even when painted the corrugations show up and make the set look cheap. We cut out sections of the consoles and placed the transparencies over them and backlit them by placing reflector lamps behind the consoles—making sure to tape everything down so no light leaked through around the edges. We also added lots of detail to the ceiling which unfortunately didn't show up in the film."

The spacesuit costumes in *Asteroid* are quite impressive. They look as good as most of the spacesuits you've seen in Hollywood sci-fi extravaganzas. The helmets and back and chest packs were designed and built by Kevin Maguire and the suits and crew uniforms were designed by Patri Pulgliese. Maguire talks about how he made the helmets: "I had always wanted a Rebel pilot helmet ever since I had seen *Star Wars*," Kevin confesses. "I knew that the helmets used in *Star Wars* had been vacuformed and I also knew that there was no way I could afford to make one that way. I knew about fiberglassing because I had seen auto body work being done and I decided to make the helmet that way. I made a rebel helmet by sculpting it and casting it in fiberglass, taking great care to avoid undercuts. After I learned the technique by making a rebel helmet I knew I could create an original design, and Steve asked me to do just that for *Asteroid*.

"I made the Gen Met helmets by sculpting them and then casting them in fiberglass," Ken goes on. "Zac Ornstein's helmet was a terrium that Steve modified by painting portions and sticking model parts on. We needed two Gen Met suits, so I made two fiberglass castings of each part needed for the helmet. The Gen Met suits were two identical ski suits that we found on sale at a local ski shop. We filmed in July in a local gravel pit and the suits were quite hot, one actor almost got heat prostration! The face plates of the Gen Met helmets were made of thin mylar because by this time we knew enough about fiberglass casting to know that molding clear fiberglass is next to impossible to do successfully. One thing I would add to future helmet designs is an electric fan for ventilation. The backpacks were made out of foamcore with knic-knacks added on for effect. The chest plates were made completely out of foamcore and were rather difficult to make because we had come up with a fairly complex design and we had to make two exact copies. Zac's suit used mostly styrofoam pieces for the back and chest packs and the whole suit was based on an Apollo astronaut's suit. Patri Pulgliese custom made Zac's suit from our modified Apollo design."

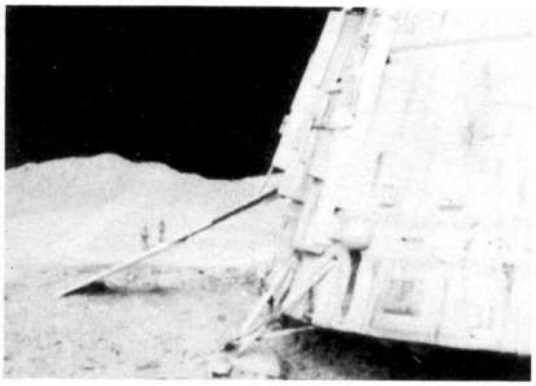
There is an impressive looking laser gun in *Asteroid* that Zak Ornstein uses to drill through rock, take core samples and do battle with. It's made out of foamcore and cardboard boxes glued together and mounted on a tripod covered with PVC pipes. Bill Rudow sent away to a company that makes industrial signs and was able to get signs that enhance the realism of many of the props with such messages as: "Danger: Laser Light", "Caution: Radioactive Material" and "Twenty Thousand Volts." The laser blasts were scratched onto the film and a magic marker was used to make the laser blasts red.

"We shot in single system sound Super-8," Parady discloses. "We used a Sankyo camera with a microphone on a chord. We knew from previous experience to shoot a couple of seconds worth of footage before we began any dialog so we wouldn't run into problems in editing the single system sound. Unfortunately, the soundtrack on the balance stripe—which was all-original music recorded by some friends in a band called Pathway—was inaudible at the CINEMAGIC/SVA awards screening because the projection equipment couldn't playback sound on the balance stripe. It was really disappointing because the music is so good and really enhances the overall impact of the film. I started editing the film as I got it back from the lab, while we were still shooting. The entire film is tape-spliced. Editing as we went along helped us pace the scenes we had left to shoot because we hadn't storyboarded very many of the scenes. The only scenes we storyboarded were the ones we shot on location in a local gravel pit. These are the out-of-ship scenes that take place on the asteroid.

"The gravel pit scenes were the most difficult scenes to shoot because we had many shots that used foreground miniatures that we had to match up with the live actors in the background," Steve admits. "That's why we made a special point of storyboarding these scenes, so we wouldn't go crazy trying to edit them together. We had first read of foreground miniatures in CINEMAGIC #1, and I had always wanted to try it. Probably the most difficult shot in the whole film was the one in which the Gen Met men are seen walking down a ramp from their ship. We had to precisely line up the shot so the actors, who were in the far distance, would appear to walk down the ramp and not go floating off of it. The actors had to walk sideways as well, and it took quite a bit of time to block out. In one take of that shot a gust of wind blew the ramp off of the model and we have an out-take that shows the men walking down the ramp, then the ramps blows away and the men are walking in midair!

"We used a piece of glass painted black on top to form the ridges of the mountains in the gravel pit scenes and block out the daytime sky so the action would appear to take place in space against a black sky instead of the dead give away of an earth-like blue sky," Steve discloses. "We also had to wait for breaks in the clouds the day we shot because we wanted to get a harsh, outer space lighting effect and avoid cloud shadows. We had problems with reflections on the glass and we have lots of out-takes of the gravel pit scenes.

"We had the camera all the way on wide



PHOTOS: STEPHEN PARADY

Above: This foreground miniature shot of men walking down the ramp of the Gen Met ship is extremely well done and is a perfect example of the high quality special effects you can create in Super-8 without any fancy equipment. **Right:** Parady shoots an early test of a foreground miniature set-up. The glass painting blackens out the daytime sky.

Left: Parady on location in the gravel pit with the Zac Ornstein ship, setting up a foreground miniature shot. Parady designed the ship to resemble a pack mule and built the model in one day. **Below:** one of the Gen Met men is hit with a laser blast and explodes—a dangerous stunt.

angle with the foreground model as close to the camera as we could get it and keep it in focus. We had to zoom in for some shots to avoid getting the edge of the glass. We found that the depth-of-field with Super-8 set on wide angle allowed us to get some pretty impressive foreground miniature shots. We had done some tests earlier with a 35mm still camera and found that we had focus problems with the still camera that we didn't have with the Super-8 camera.

"We used a different camera to film the gravel pit scene than we used to shoot the rest of the film," Steve reveals. "The viewfinder wasn't as accurate as our standard camera, so there are some minor framing problems with some of the foreground miniature shots, but nothing we felt we couldn't live with. We shot the whole film on Kodachrome (except some of the computer graphics effects) and were able to stop the lens down to f22 for the foreground miniature shots because we shot in bright sunlight, so depth-of-field really wasn't a problem."

"There are several shots in the film that show the spaceships flying through space," Steve continues. "We didn't backwind any shots in the film. In the shots where there is nothing but a ship surrounded by the blackness of space, we created the illusion of a moving ship by moving the camera toward the model. We built an HO scale model train track for the camera and dollied in on the model. On the screen, it looks as though the ship is coming towards you. In the shots where one of the ships lands on or takes off from the asteroid, we used two slide projectors. One slide projector had a slide of the asteroid and the other had a slide of one of the ships. We masked the slides so the black surrounding the ship (which still allows some light onto the screen) wouldn't show up. We carefully painted around the image of the ship and masked the rest of the slide with aluminum foil. It's pretty much the same method that Jeff Pollizzotto described for UFO effects in CINEMAGIC #13, but we filmed those scenes before that issue was printed. We moved the projector with the spaceship slide to show it landing or taking off. Obviously, the slide showing the asteroid (which was a miniature landscape made of paper mache and plaster of paris with a black sky) remained steady. We cut to the next shot before the image of the ship overlapped the image of the asteroid. It's a quick and easy method that's cheap and effective."

There are some very effective explosion effects in *Asteroid*. Steve tells how they were created: "Mark Frizzell did all of our pyrotechnic effects. He is very experienced at pyrotechnics and he knows what he's doing. Some of these stunts were very dangerous and should not be tried by inexperienced filmmakers. He used flash powder. We had some small explosions set off right on the actor's suits to effect laser hits that were done with flash powder in very loosely packed wrappings of aluminum foil and set off with flash builbs.

"We had one close call with Kevin Maguire, who designed the Gen Met suits and was playing one of the Gen Met men," Steve remembers. "There was a scene that called for an explosion right on Kevin's chest. It looked great, but the explosion sent pieces of molten aluminum foil all over his suit. We were lucky that it was a heavily padded ski suit because it melted right through the suit and would have seriously burned him if it wasn't for the suit's heavy padding.

"Even under controlled circumstances, unexpected things can happen that can cause people to get hurt," Steve warns. "There's one explosion were one of the Gen Met men, who is carrying a bazooka, blows up completely. We cut from a live action explosion on the bazooka to a miniature being completely blown apart. It's very effective. We shot the miniature explosion at 70 fps with a borrowed camera. Frizzell filled the miniature with blood and it looks pretty gory on the screen. Needless to say, Zac defeats the Gen Met men and wins the asteroid."

Steve is looking to break into professional filmmaking. His main interest is creating special effects. "One of the great challenges of making an outer space movie is that you have to build everything," Steve quips. "I really enjoy building sets and models and making them appear realistic on the screen. I also want—as an immediate filmmaking goal—to start shooting in double system sound. I really wish that I could shoot in 16mm, but my financial resources rule that out at the present time. One project that I'm currently working on is building a motion control system. Paradox Productions is a group of friends that enjoy making amateur films together. We've got some very talented people working with us.

"Our weakest area at present is our scripting ability," Steve concludes. "We can create some wonderful effects, but we really want them to just serve their natural purpose of enhancing a good story. I would appreciate it if any CINEMAGIC readers out there who consider themselves good scriptwriters and would possibly like to work with us would send us a script or a draft of a story idea that we could collaborate on. We would of course give full screenwriting credit and I think that they would be happy with the results we are capable of achieving." The address for interested scriptwriters is: Paradox Productions, c/o Stephen Parady, 426 Moody St., Waltham, MA 02154.

Steve's love for filmmaking—especially special effects filmmaking—has been a rewarding hobby for him. He has the self-satisfied demeanor of an artist who is happy with his creations. His spaceship modeling abilities are quite impressive and will be featured in the next issue (#6) of FANTASY MODELING. His interest in space exploration keeps him active as a member of the L5 Society. He hopes to combine all of these interests as a professional special effects artist. Right now he's happy spending all his pocket money making movies with his many talented friends that may lead to a promising and rewarding career in the film business. CM

AWARDS NIGHT!

The winners of the CINEMAGIC/SVA Short Film Search—1981, were treated to a gala screening of their films at New York City's 50th St. Guild Theatre.

The lucky winners of the CINEMAGIC/SVA Short Film Search—1981 were treated to a gala screening and awards ceremony in New York City last November. In addition to screening some of the finalists' films, hosts Kerry O'Quinn (publisher of CINEMAGIC) and Charles Hirsch (chairman of the School of Visual Arts film department) introduced special guests and awards presenters.

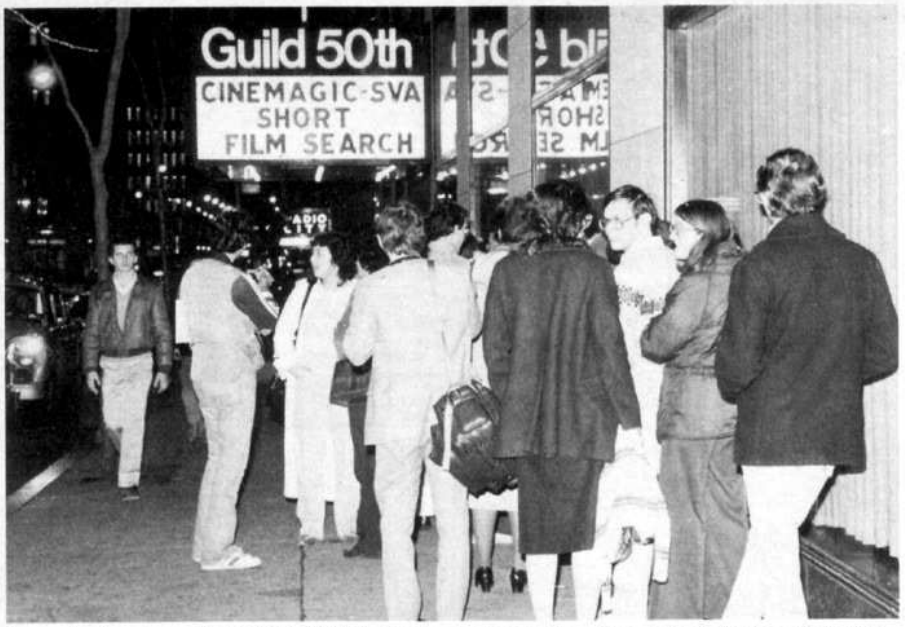
Among the special guest awards presenters were Paul Hirsch, Academy Award winning film editor of *Star Wars, The Empire Strikes Back, Blow-out* and many other notable feature films (and Charles Hirsch's brother); Jerry Greenberg, editor of *The French Connection* and *Dressed to Kill;* David Vogel, Vice President of George Romero's Laurel Associates; and Charles Kaufman, director and co-producer of *Mother's Day*—which won a grand prize at the 1981 Paris Film Festival. Mr. Kaufman is currently directing and co-producing *The Outdoorsters,* a comedy scheduled for release this summer.

Each winner who was present for the ceremony was presented with a CINEMAGIC/SVA trophy by one of the distinguished guest awards presenters, and received a check for the amount designated for the category that his film won in. Winners who were not present received their prizes through the mail along with the return of their film.

Merchandise prizes were also awarded. Companies who were generous enough to donate merchandise prizes to the contest were: Eastman Kodak, which contributed information packets that contained the "World of Animation" book; Olden Camera of New York City, which contributed a $50 gift certificate; Halmar Enterprises of Lewiston, New York, which gave a beautiful Craven Backwinder for Super-8; Magnestripe of Passaic, New Jersey, which gave 500 feet of free magnetic sound striping (see their ad in CINEMAGIC MARKETPLACE); and the Gepe Broadcast Equipment & Supply Company of Bluff City, Tennessee, which gave two cases of non-rewind reels for Super-8 and Single-8. We wish to thank these companies for their support to the worthy cause of finding and rewarding new filmmaking talent.

The screening of the winning films and awards ceremony was an entertaining and fun-filled evening. Many members of the general audience came forward afterwards to tell us how much they enjoyed the show. There was a party for the winners after the show at the School of Visual Arts. Food, beer and wine were served and we got a chance to meet and talk to the winning filmmakers. You'll be reading about them in future issues (See the profile of Stephen Parady on page 12 of this issue.)

If you entered this year and didn't win, please don't be discouraged. There were many fine films in this year's competition that deserve recognition even though they fell just short of winning a prize. Some of these films will be the subjects of future articles because they merit attention. Every film you make teaches you more about the craft of filmmaking and gives you insight you can use in your next film. We wish to congratulate everyone who entered this year's contest. You all share a love for filmmaking that is very special. Keep making films. Continue to grow as artists. We hope to see you again next year. CM



A crowd gathers outside the Guild 50th St. Theatre and anxiously waits for the doors to open for the showing of the winners of the CINEMAGIC/SVA Short Film Search—1981.

PHOTOS: JOHN CLAYTON

Al Magliochetti accepts his award for ***Dance Macabre*** from David Vogel, the movie mogul.

Kerry O'Quinn introduces editor Paul Hirsch as an awards presenter.

The Award Winners

Super-8

Grand Prize ....."Homecoming" by Timothy A. Young, Ashland, Kentucky

First Prize ....."A Sticky Situation" by Brad McGovern, Warwick, NY.

Second Prize ....."Arcade" by Doug Chiang, Canton, Ml.

Third Prize ....."Asteroid!" by Stephen Parady, Waltham, MA.

16mm

Grand Prize (a tie)...."Cabbages & Kings" by Tim Landry, Los Angeles, CA.

"Dance Macabre" by Al Magliochette, Hamden, CT.

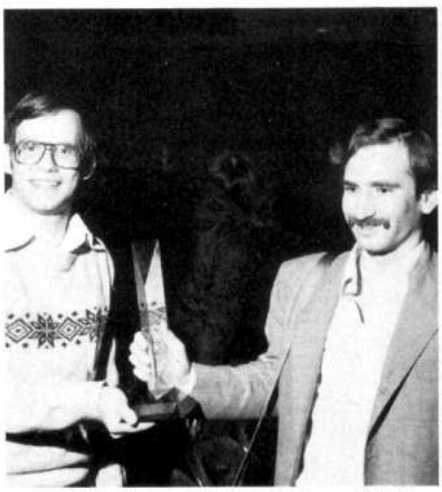
First Prize ....."Eat" by Ralph Miller, III, Los Angeles, CA

Second Prize ....."The Caller" by Kevin Jacques, Atlanta, GA

Brad McGovern accepts his award from director Charles Kaufman.

Kevin Jacques accepts his award for ***The Caller*** from film editor Jerry Greenberg.

Left to right: Paul Hirsch, Chuck Hirsch and Jerry Greenberg clown around at the show.



Stephen Parady and Bill Rudow show-off their trophy after the awards ceremony.

Electronic SPECIAL FX

IT!

By CHRIS E. STEVENS

The hardest problem that I had with this project was trying to decide what to call it. I still don't know. What "it" is, is a light emitting diode (LED) that has two diodes in one lamp housing. It glows red or green, depending on the polarity of the circuit and yellow when AC is applied.

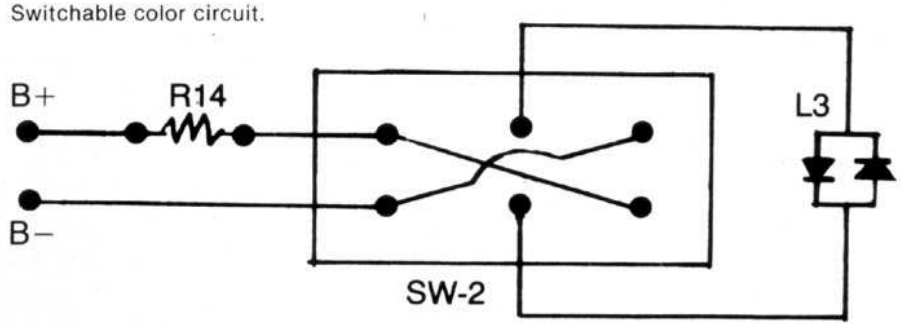
I came up with two or three ways to use this thing: (1) a simple switch arrangement, so that you can change the color with a flip of a switch (I tackle the easy stuff first and work my way up from there); (2) A flasher circuit with a switch to change the color of the lamp (this one was fun and quick); (3) A flasher circuit, alternatingly lighting the diodes—green to red and back to green. This last got the greatest reaction from my friends. I usually left the thing in some obscure place, but yet where it couldn't help but be noticed. When they spotted it flashing, there would be a moment of studied silence and then the inevitable question: "What the hell is that?"

Since I had a little copper clad board left over from the power supply project (CINEMAGIC #13) and plenty of etchant, I was all set. I designed the flashers to fit on a three by six inch piece of copper clad board. If you arrange them end to end, you can fit the two units on half of the board, running length wise. They are only 1-1/2 inches wide and the two, end to end, are around six inches. The longer unit is 3-11/16 inches and the shorter board is 2-5/16 inches in length.

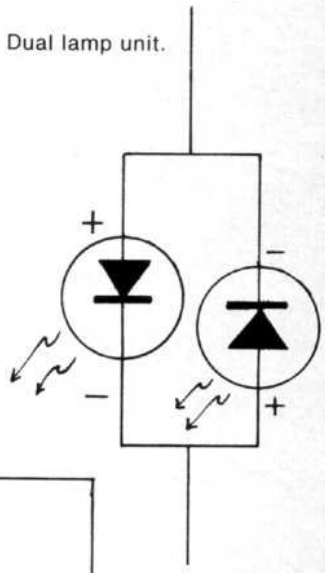
All three circuits will operate on up to 15 volts, and the circuit will start to flash somewhere between three and four volts. So far, it's going strong after eighteen solid hours with a nine volt battery and seems to work best between nine and twelve volts. The lamp brightness does vary with the voltage and condition of the battery.

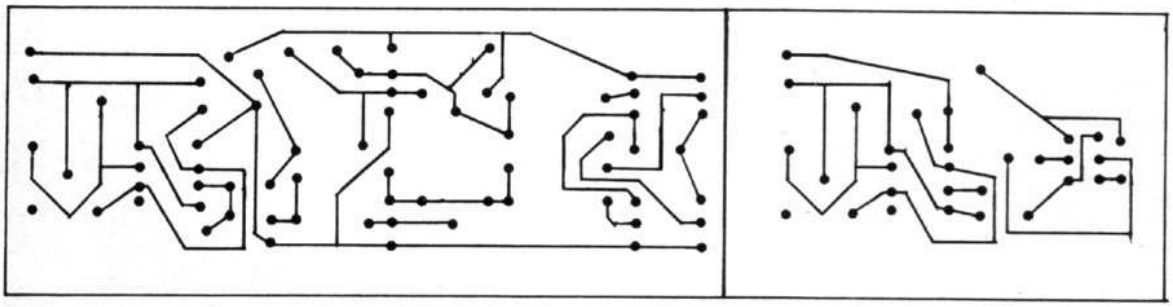
The alternating flasher can handle up to six tri-colored LEDs at a time (see chart). So, if you need a spaceship control panel, ray gun, communicator or other SF prop with six flashing lights, you can parallel the LEDs so that they will flash the same colors at the same time or you can hook

Switchable color circuit.

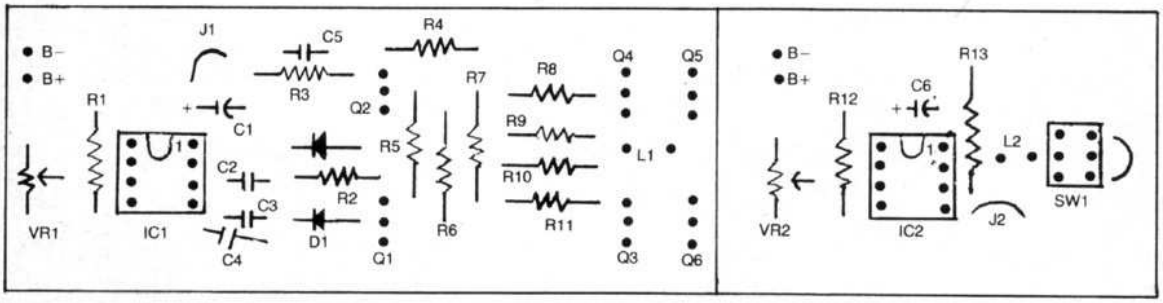


Dual lamp unit.



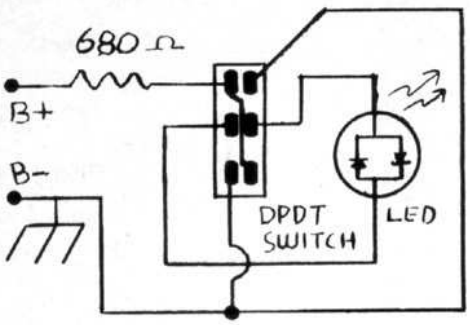


Etching pattern, bottom view.

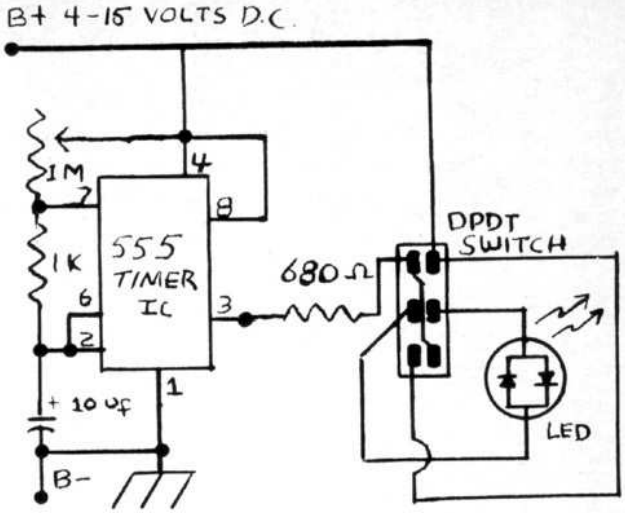


Parts placement diagram, bottom view.

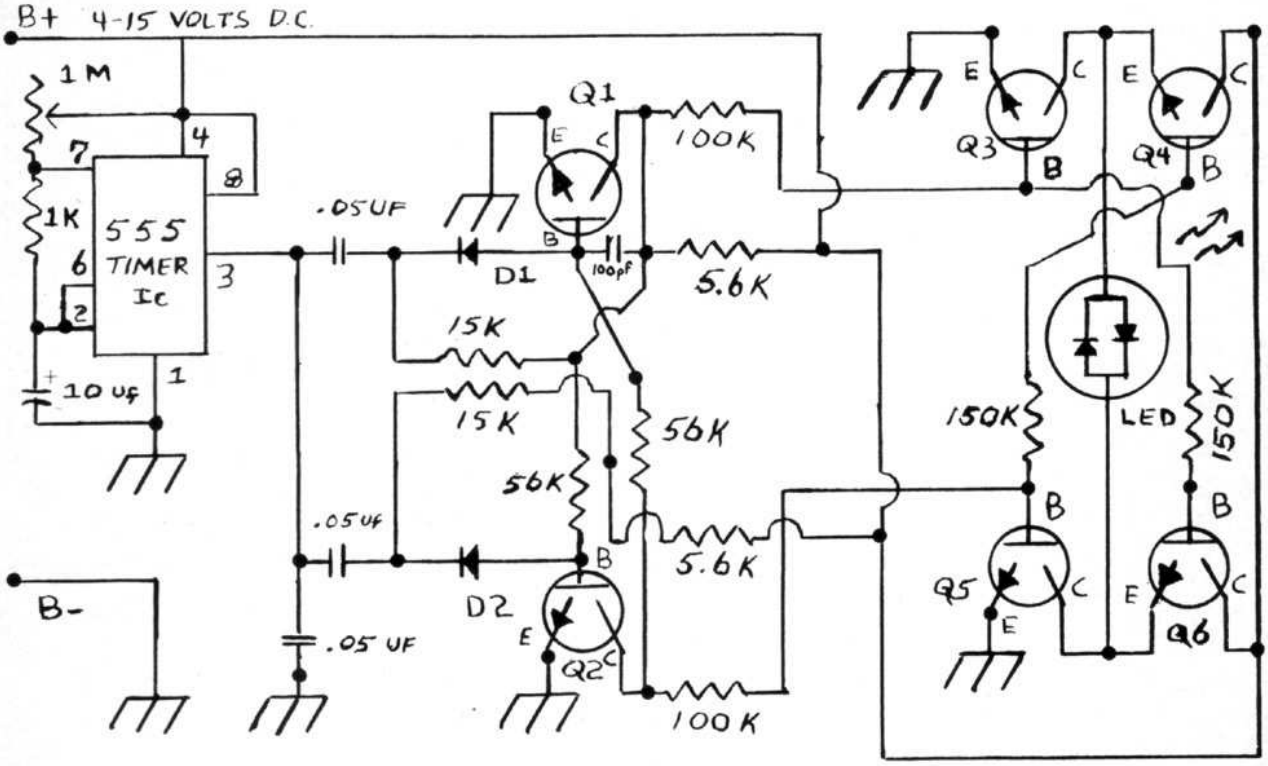
PROJECT 1

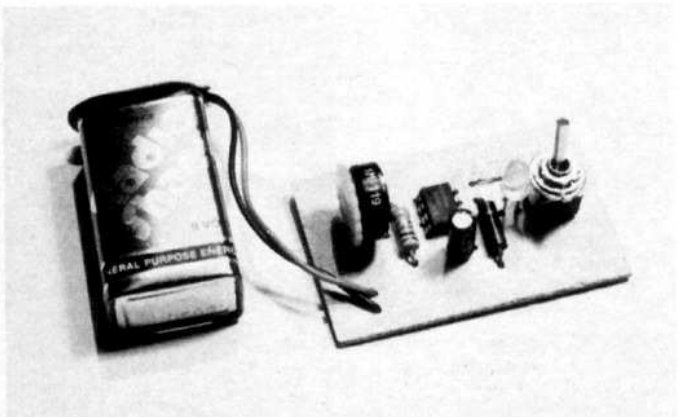


PROJECT 2

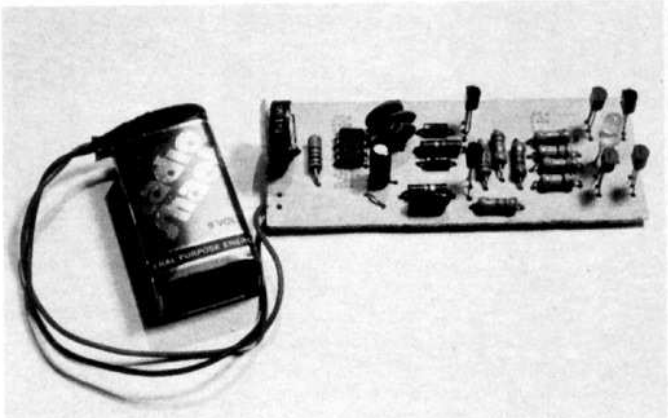


PROJECT 3





The simple switch arrangement LED circuit. The switch changes the polarity of the circuit and causes the LED to change color to either green or red.



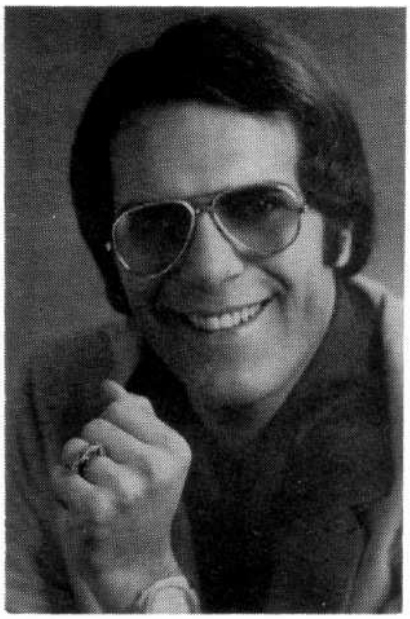
The automatic electronic switching circuit automatically switches the color of the LED back and forth from green to red and flashes constantly.

them up so that some of them are green while some of them are red. That's just one application and I'm sure you can think of more.

Use the photo of the completed project and the parts diagram as an aid for parts placement. Double check to make sure that you have the timer, electrolytic capacitor, battery wires and transistors installed correctly. The photo is the view from the top side of the board, the circuit pattern is a view from the bottom side. The number "1" on the 555 timer ICs indicate where the number one pin of the IC should be. As an additional note, all six transistors face in the same direction with the flat side *toward* the timer IC. Don't worry about getting the LED in backwards, since it doesn't make any difference with this particular circuit, and, of course, the nine volt battery clips are optional.

Let's Hear From You!

I'd really like to hear your suggestions for electronic special effects projects. If I can, I'll answer your questions about how some of the effects are done. Also, I'd like to know how your projects turn out, and how you use them. For the next project, you might see a light "chaser" system, similar to the one used in the *Buck Rogers* TV series, which is used to create the "light cables" running to the individual craft in the launch bay. The lights seem to flow toward the craft in ripples. CM



Chris E. Stevens

Born and raised in Hammond, Indiana, Chris graduated high school in 1967, graduated electronics school in 1968 and attended Lincolnland College (Springfield, IL) for one year in 1971. Up until recently he has had his own local PBS-TV show called ETC! Of himself, he says, "At present I'm making my living by custom designing and building electronic specialty equipment. I have an F.C.C. Radiotelephone License for Broadcast Engineering and I am also a licensed pilot. I have pursued a career as a radio DJ for the last 12 years and am presently looking to get back into the business."

RESISTOR SUBSTITUTION CHART

No. of LEDs in circuit	Substitute for R-8 & R-10	Substitute for R-9 & R-11
2	56 K ohms	120 K ohms
3	56 K ohms	100 K ohms
4	39 K ohms	56 K ohms
5	27 K ohms	39 K ohms
6	22 K ohms	27 K ohms

PARTS LIST

All of the parts for this Electronic SFX project are available through your local Radio Shack Store. Radio Shack part numbers are listed in italic for your convenience.

PROJECT ONE
Simple Switch Arrangement

1 DPDT switch *#275-614* (*#275-1545* for "center-off")	**SW-2**
1 Tri-color LED *#276-035*	**L-3**
1 680-ohm, ½ watt resistor *#271-021*	**R-14**

PROJECT TWO
Flasher With Color Change Switch

1 1 megohm variable resistor (flash rate speed) *#271-229*	**VR-1**
1 1 k ohm resistor, ½ watt *#271-023*	**R-12**
1 680-ohm resistor, ½ watt *#271-021*	**R-13**
1 555 Timer IC *#276-1723*	**IC-2**
1 jumper wire	**J-2**
1 DPDT Switch (same as in Project One)	**S-1**
1 Tri-color LED (same as in Project One)	**L-2**
1 4.7 uf electrolytic capacitor *#272-1024*	**C-6**

PROJECT THREE
Alternating Color Flasher

Note: Refer to the Resistor Substitution Chart if you plan to use more than one LED.

1 1 megohm variable resistor (flash rate) *#271-229*	**VR-1**
1 1 K ohm resistor, ½ watt *#271-023*	**R-1**
1 555 Timer IC *#276-1723*	**IC-1**
1 4.7 uf electrolytic capacitor *#272-1024*	**C-1**
2 .05 uf disc ceramic capacitors *#272-134*	**C-2, 3**
1 .1 uf disc ceramic capacitor *#272-135*	**C-4**
1 100 pf disc ceramic capacitor *#272-123*	**C-5**
2 rectifier diodes *#276-1101*	**D-1, 2**
2 15 K-ohm resistors *#271-036*	**R-2, 3**
2 56 K-ohm resistors *#271-043*	**R-5, 6**
2 5.6 K-ohm resistors *#271-031*	**R- 4, 7**
2 100 K-ohm resistors *#271-045*	**R-8, 10***
2 150 K-ohm resistors *#271-047*	**R-9, 11***
1 Tri-color LED (same as above)	
6 2N2222 Transistors *#276-1617*	**Q-1, 2, 3, 4, 5, 6**

Miscellaneous:

Copper clad board 3 x 6 inches *#276-1586*
Etchant *#276-1535*
Battery Clips (optional) *#270-325*

Filmmakers' FORUM

Carbon Lasers

. . . I have a reasonably simple and inexpensive technique for creating laser beams as seen in countless SF flicks. First, you should be aware that when viewing an intensely bright light, such as a laser, the eye doesn't see a perfectly crisp line. There is a "spill-over" effect. The same holds true for film emulsions.

The technique used in high budget SF films is simple, but expensive for the amateur filmmaker. First, a line is drawn on clear acetate with opaque ink. A negative is then made to get a clear line on a black background. Next, a positive is made with a long exposure and colored gel behind the negative under low light to create a bleeding effect.

Since the average filmmaker doesn't possess the equipment to make the negatives and have them enlarged, or the money to have a lab print up many separate Kodalith negatives, the process that I'll describe can really help the amateur filmmaker achieve professional-looking results at a fraction of the cost.

I create the same laser effect as the big studios do by cutting a line in a piece of carbon paper (poster board doesn't cut very cleanly.) This is much cheaper than using Kodalith negatives and works just as well. It also eliminates the first two steps of drawing the line and making the negative. Next, I place a colored gel under the carbon paper with the slit in it and photograph it with long exposures while it is backlit.

By taking care to register the laser artwork cel carefully where you want it in the frame and backwinding,you should get very impressive results. I cannot emphasize enough: *experiment first!* Take a test roll of lighting and exposure lengths. I can't recommend an exposure because the intensity of the backlight will vary with every set-up.

Steve Martin
5609 Dogwood Tr. NE
Albuquerque, NM 87109

Copyright Your Work!

. . . In reference to Judith Davidson's letter, "Ripped Off," in the Filmmakers' Forum section of CINEMAGIC #15: Anyone writing stories or film scripts should have the proper copyright notice on their work, and should have copies made in a copy machine. Never send your only copy or one without the copyright notice on it. Writers should ask for form PA from the copyright office (they're free), also circulars R4 and R1c.

The address is: Copyright Office, Library of Congress, Washington, D.C. 20559. I say, ol' chap, CINEMAGIC is a great magazine!

John Laird
P.O. Box 24064
Dayton, OH 45424

Tie-Down Bog

. . . I have one mean little problem that I have been racking my brains over. The problem is this: How can you make efficient tie-downs for animation models without destroying the set with drilled holes? Tie-downs seem to be a big help, but oh those holes! Do you have any answers?

Allan Sharp
53 Vanier Rd.
Ottawa, Ontario
Canada K2H-7P5

. . . Maybe some crafty CINEMAGIC reader has come up with a solution to this problem. If so, please write to Allan and put his mind at ease. Also, please let us know about your technique.

Honey Hemo

. . . Professional blood effects can be achieved simply by a method that my friend, Gary Reichman and I have discovered. Take some honey and pour it into a container. Then, take some red food coloring and mix it in slowly. Stir with a toothpick and add more food coloring until the mixture becomes the shade you desire. You can use maple syrup instead of honey, but honey is suggested because it is less sticky and is much thicker. One of the best features about this mixture is that it is non-toxic. Once you have completed this procedure you can create scenes that will make your audiences' hair stand on end. Your imagination is the only limit.

Marshal Starkman
20635 N.E. 22nd Place
N. Miami Beach, FL 33180

. . . You may also want to try Dick Smith's blood formula that appears in CINEMAGIC #2 and decide which you like best.

Address all correspondence to: CINEMAGIC—Filmmakers' Forum, c/o O'Quinn Studios, Inc., 475 Park Ave. So., New York, NY 10016

Due to the enormous volume of mail received, the editor regrets individual replies are impossible.

Ralph Miller

. . . As writer/director of *Zysak is King*, I was pleasantly surprised to see Ralph Miller profiled in CINEMAGIC #15. He is truly a talented craftsman, and this sort of recognition makes the months of unpaid toil, sweat and tears worth it.

Some of Ralph's best stuff never even got into the film, due to time constraints. I especially remember one truly amazing armature model of a winged, anthropomorphic creature. This guy is good!

I agree with Ralph that film school is the way to go, as it opens doors that are otherwise closed. However, I don't think that he stressed enough that the way to become a filmmaker is to MAKE A FILM. USC assumes that it's students have a fairly well developed story sense before they take any classes, and the only way to learn to tell a story visually is to try it. It is good that CINEMAGIC is leaning more towards advice on scripting, storyboarding and the like. Even features from big studios ignore these—at their peril.

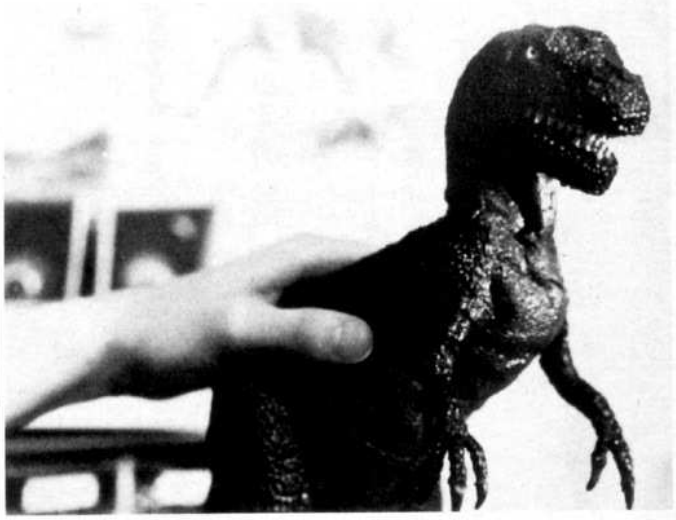
By encouraging amateurs to make films, and filmmakers to upgrade the quality of their stories, CINEMAGIC is a refreshing source of encouragement in what is often a rather discouraging business. Keep it up.

Hugh D. Stegmen
11622 Exposition Boulevard #2
Los Angeles, CA 90064

Artful Allosaurus

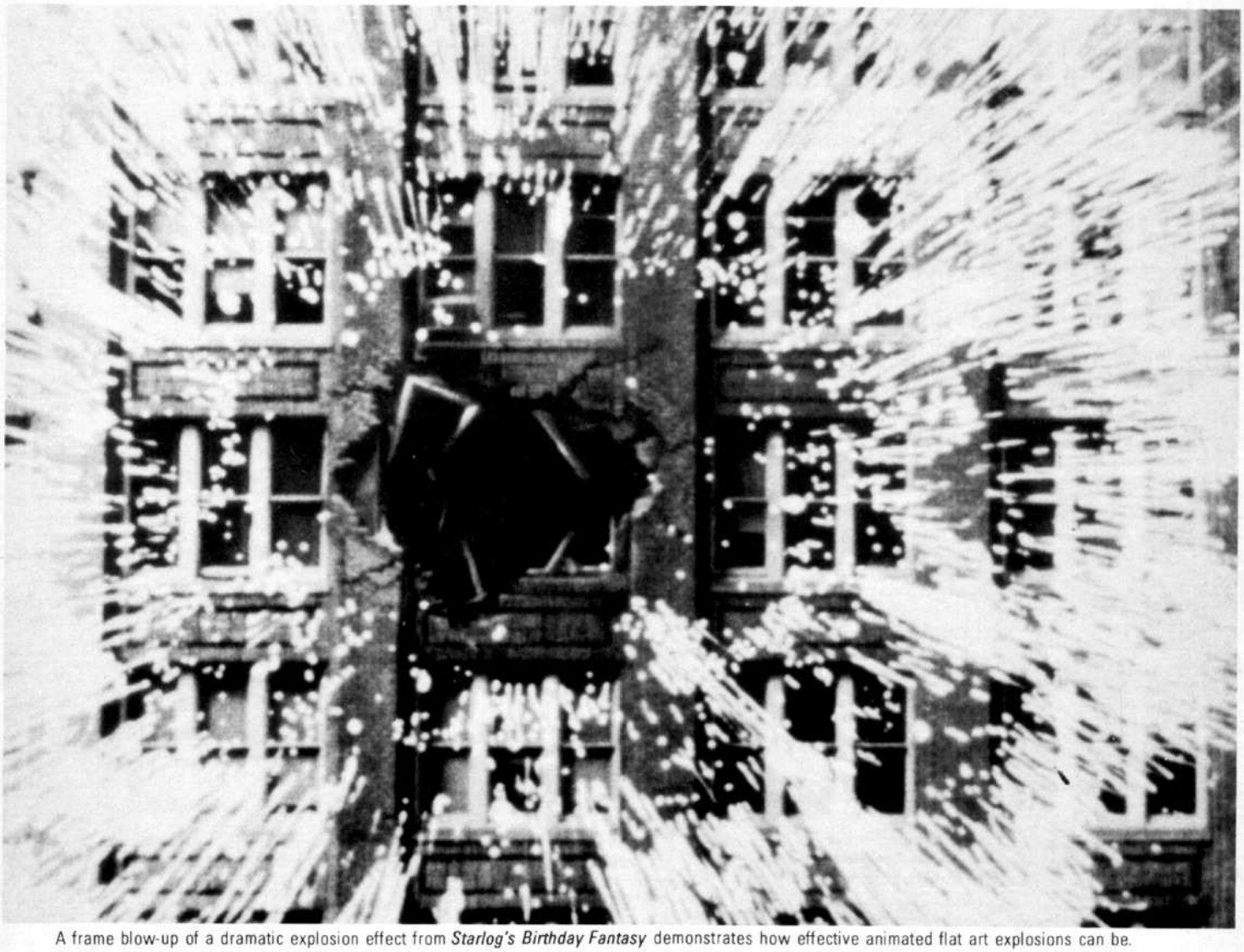
. . . Here's a photo of an Allosaurus animation model that I recently completed. It has a ball-and-socket armature of threaded lamp balls, wire, threaded brass rod and steel plates. The body was built-up with foam rubber onto which liquid latex skins were glued with contact rubber cement. The skins were made by pouring liquid latex into texture molds. The teeth and inside of the mouth are also latex. I used a hand-moldable epoxy putty ribbon to make the claws and skull. Acrylic paint was mixed with liquid latex and applied with a brush to color the model. I plan to use the model in an upcoming stop-motion animation film.

Arnold Burga
Venture Productions
6809 N.W. 21
Bethany, OK 73008



FLAT ART EXPLOSIONS or THE BIG BANG TECHNIQUE

By DAMON SANTOSTEFANO



PHOTOS: © 1981 SF FILM PRODUCTIONS

A frame blow-up of a dramatic explosion effect from ***Starlog's Birthday Fantasy*** demonstrates how effective animated flat art explosions can be.

If you have ever wanted to achieve an explosion effect without using real pyrotechniques, here is a way to do it inexpensively with great results. For materials all you will need is the following:

1) Camera with single frame and backwind capability
2) acrylic paints and a fine brush
3) Rapidograph pen or fine tipped marker
4) acetate with punched registration holes (available at better art supply stores)
5) animation stand and registration pegs (refer to the "Slit Scan Magic" article in CINEMAGIC #13 to see how to build your own stand)
6) sheet of opal or milked glass to be underlit
7) yellow or orange gels (optional)
8) oaktag
9) grease pencil

Let's use an example from *Starlog's Birthday Fantasy* to demonstrate the process behind the explosion. One scene required a laser gun to be fired at the side of a building, blowing a hole clear through the facade and knocking out an entire window.

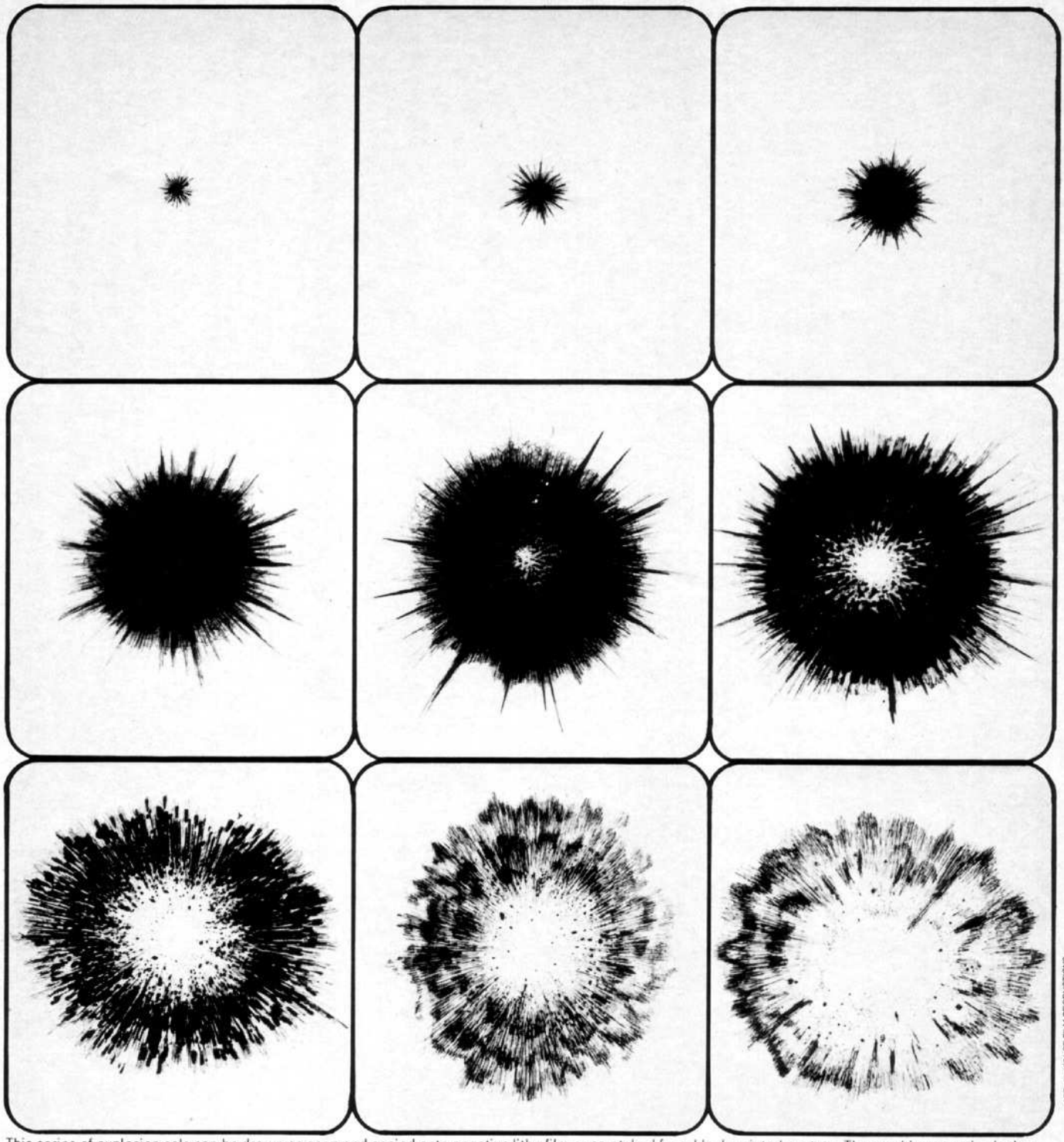
First you must start with a color photograph of the part of the building that is to be destroyed. If you are doing any live action shooting of the same building before or after the explosion shot, make sure the still photograph is taken on the same day or, on a day with similar light so that the photo will match the lighting of the live action footage. Have this picture printed on 8x10 paper or even larger if you can afford it. This makes it easier to paint over and rephotograph.

To begin your art work, you must first complete a system that will ensure that your art work will be perfectly registered—each cel must be perfectly aligned so that the finished animation will look smooth and realistic.

If you do not have access to acetate with punched registration holes and registration pegs that match, you can make your own simple registration system. Take each

The undamaged building before the explosion is photographed with a still camera and a color print (8'' x 10'' is a good size to work with) is made. The print is placed on an animation stand for rephotography in order to achieve the effect. Shoot several frames before animating the explosion.

The same color print can be used for the after explosion damage. The explosion damage is painted on acetate over the print. An airbrush helps soften the edges to make the painting blend in and adds a smoke effect at the same time. The explosion is superimposed by backwinding and double exposing.



This series of explosion cels can be drawn as seen and copied onto negative litho film or scratched from black-painted acetate. The resulting negative is then underlit and double exposed over the building photo. By cel #6 the explosion becomes hollow, revealing debris. By cel #10 the explosion begins to dissapate and fade-out. Experiment with colored gels to see what color might add to the effect. The underlit cel should read 2 stops over the building photo.

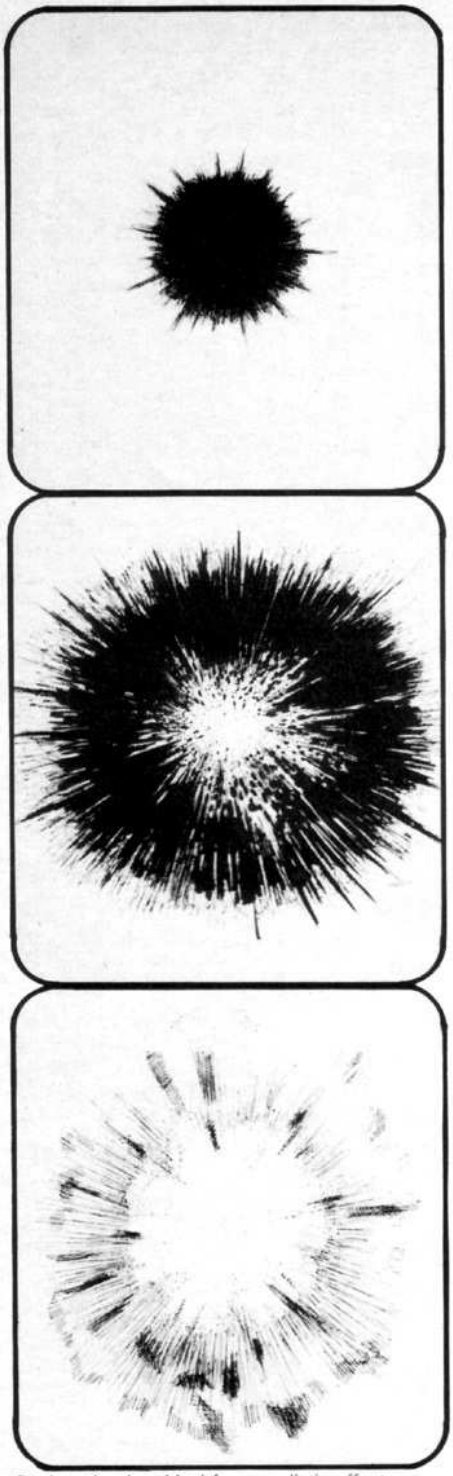
piece of art work and rubber cement them onto a slightly larger piece of oaktag. This not only serves as support, but you can then punch holes in the top edge with a hole puncher. Make sure the holes are exactly the same distance apart on each cel. Then make registration pegs out of two, one-inch long pieces of dowels. Place them the same distance apart as the punched holes, and glue them down onto a thin slat of wood. You now have the means to keep all of the cels aligned with one another by fitting the punched oaktag over the pegs.

The next step is to create the hole in the side of the building to show the after-explosion damage. First register your building photograph by laying your photo that is glued to punched oaktag, over the registration pegs. Take a sheet of punched acetate and lay that over the pegs and the photograph. This is called an overlay. You can now begin to carefully paint the hole and hanging rubble over the window. You can also use a Rapidograph pen to achieve fine detail of bent beams and hanging wire. You might begin by painting a large, jagged black hole and then add fine color detail around the edges to help blend the painting into the photo.

The duration of the blow-up can vary in length depending on how dramatic an explosion you wish. For the most realistic effect, it should last about one second.

Say the explosion does last for one second, that means you need 12 explosion cels, as you will shoot each cel for 2 frames, for a total of 24 frames for one second of animation.

Take a clean sheet of punched acetate (number it as 1, with a grease pencil on a top corner) and lay it over the pegs, building photo and hole overlay. Using your Rapidograph or felt marker, start with a very small solid circle that is centered



Registration is critical for a realistic effect, so make sure you place your cels on punch-registered acetate.

over the hole in the window and then work a fine network of lines outward from it. The size of the first explosion overlay should be determined by how much you want the explosion to encompass the side of the building. Remember you only have 12 cels, so if the explosion is to be fairly small, then the explosion should grow only slightly in size from one cel to the next. If the explosion is to engulf the entire frame, then allow each drawing to grow considerably per cel. In the illustrations you can see that from approximately cel #8 through #12, particles and debris were added to give the explosion a more textured and realistic look. Also in the last 3 or 4 cels, the explosion should progressively dissipate so that it realistically disappears on film.

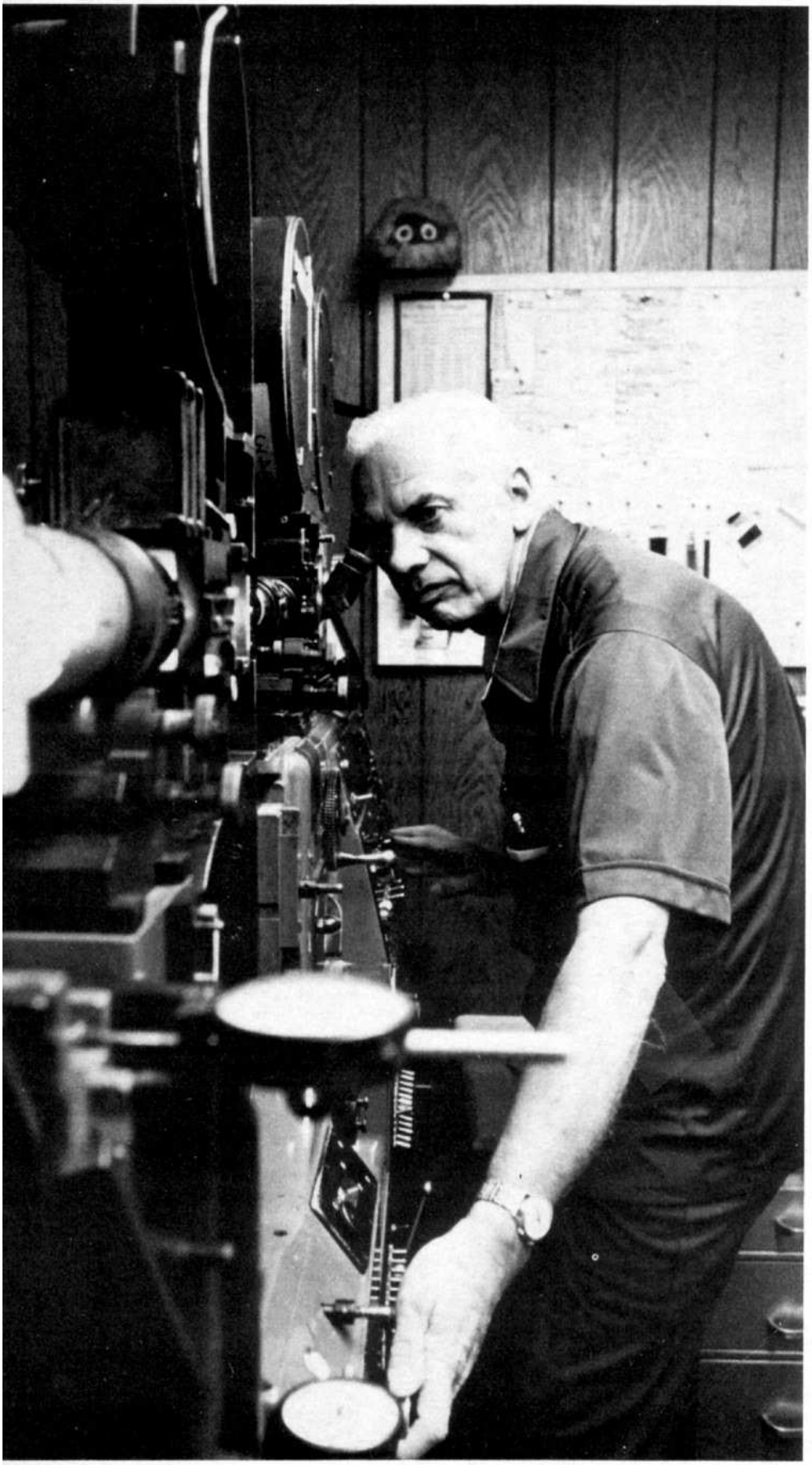
In order for the explosion to be superimposed over the building photograph, you must take your 12 cels to a photography store and have a high contrast negative made of each, or you can make your own negatives on Kodalith Film if you know how. See Kodak's publication, *Basic Photography For the Graphic Arts* (publication #Q-1) for information on how to process lithographic film. Once in the negative form, they can be underlit and properly "burned in" over the building shot. With these negatives in hand, you can begin the photography. A low cost alternative to high contrast negatives can be done by painting a sheet of acetate black with acrylic or plastic base paint, and then scratching in your desired art with a pin or Exacto knife. Once you are done etching, make sure there are no light leaks on the solid black areas of the cel or it will show up on film.

Set your camera on an animation stand and register the building photo on the pegs. Now shoot the photo for a few seconds, assuming you want it to appear unharmed for a moment, stop the camera and record the frame number. Let's assume the frame number is 72. Register the hole overlay showing the after explosion damage and shoot the building photo and overlay for 2 to 4 seconds. Record the frame number at which you stopped. Wind your exposed film back to frame number 72. Make a measurement and mark of where the hole overlay is in your frame so that the explosion overlays are on target. Remove the artwork and prepare the opal glass table top that you will underlight. A regular piece of glass will work, provided some material such as light weight typing paper or draftman's mylar is used to diffuse the backlight. Simply secure the glass underneath the camera stand, tape down sheets of typing paper or other diffusion material (one layer thick), and set up 2 or 3, 150-watt bulbs underneath the glass.

Register the first explosion negative on the glass, making sure that the first cel is on the hole overlay mark. With the backlights on, experiment with color gels to see what a hot yellow or orange might add to the explosion. If the underlit explosion cel (use the biggest and fullest drawing) reads at least 2 stops over the exposure of the building photo, it will burn in properly. When you are ready, shoot each cel for 2 frames until you have shot all the cels and 24 frames. Now place the lens cap on the lens and run off the film up to the frame number that designates the end of the hole overlay shot.

You have successfully created the illusion of an explosion and extensive destruction. Great feeling, eh? As you can see in the illustrations, the sequence of photos shows the finished product looks quite convincing. CM

CAREERS



The late Frank Van der Veer operates an optical printer at his special effects company, Van der Veer Photo Effects.

One of the busiest optical houses in Hollywood is Van der Veer Photo Effects. Owner and founder Frank Van der Veer handles everything from high-speed miniature photography to matte paintings and blue-screen traveling mattes. He is currently developing a new optical printer that combines the technology of film optics with the speed of video electronics. His electronic optical printer is the subject of an upcoming STARLOG SFX installment. During a recent interview, however, Van der Veer spoke a bit about career possibilities in special photographic effects and qualities that he, as an employer, would expect from a prospective employee.

"Everyday I receive resumes and letters from young people saying that they want to be in photographic effects. The problem for these young people is the length of time it takes to train a person in this field. In this business you don't learn in a short time and I can't afford to pay somebody while they learn. Even most of the major studios today are unable to maintain the costs of special photographic effects departments."

A special-effects man is a problem solver. His function is to enhance the production values of a film and make possible sequences that would be impossible or too costly to film under ordinary conditions. He solves production problems by drawing upon the solutions to earlier problems and combining that experience with a dash of personal creative genius with whatever new information or techniques he or someone else has thought of, but not yet tried.

"This situation is in contrast to that of an assistant cameraman," Van der Veer suggests. "You can be an assistant cameraman on a stage or especially a second assistant. You can learn that very easily, because you are working with the same equipment doing the same task—different scenes, of course, but a camera is a camera. It operates the same—you mark the feet, measure the load and unload . . . that sort of thing. I don't want to demean the job, but it is the sort of thing you can learn rather quickly.

"In our end of the business, however, there is so much to learn that you can't learn it in a short time. You can learn how to work a single effect or system—you can learn the mechanics of a shot in *Star Wars* for example. Fine. But the next movie that comes along will have a whole different set of problems. It takes many years of experience to build the background necessary to handle all of the problems that a special-effects man is expected to deal with."

"Experience. That's the key. In order to solve the problems that occur in this business you draw upon the experience that

you had 10 years ago at [20th Century-Fox], five years ago at Warner [Brothers] and the week before last on a TV commercial. A successful special-effects company needs to blend that experience with youth—the enthusiasm of youth."

It is primarily this enthusiasm for the work that Frank Van der Veer looks for in the prospective employees that he occasionally interviews. "You can spot the right people almost at once. I talk with them to get an idea of their experience and where their heads are at.

"Naturally, it's a pretty quick judgment," he confesses, "but you can do fairly well. The *desire* is really the most important thing. If the first thing they ask me is, 'How many weeks of vacation do I get or 'How much do I get paid' . . . I know the desire is not really there.

"Often I'm asked during the interview, 'What are my chances for advancement?' Well, that depends on you. I'm not going to hold you back. I have been looking for years for somebody that wants my job. I would *welcome* that. Why? Well," explains Van der Veer, a smile tugging at the corner of his mouth, "first of all it would be interesting . . . he would have a fight on his hands. But if he *could* prove that he could do my job better than I could, he can have it!" Smiling broadly now, Van der Veer reclines in his chair. "After all it's *my* company; I'm still going to be paid. I'd have an easier time, though. There would be somebody I could start delegating things to. I've had one week's vacation in 18 years. So—someday I would like to have another one.

"A week ago I got home in time to have dinner with my children. I have a 14-year-old boy, a 12-year-old girl and an 11-year-old boy. That was probably the sixth or seventh time *in their whole lives* that I've had dinner with them during the week.

"You have to be dedicated. I find that sort of dedication hard to find today."

Van der Veer is quick to describe to his interviewee the hard financial realities of the business. "Unfortunately, I cannot afford to provide a situation that enables newcomers to earn while they learn. And most people cannot afford *not* to earn while they learn. The best way a person can get into this business is to start as a 'go-fer.' As a go-fer, he's *here*—that doesn't cost me much money. He's providing me with a service. Human nature being what it is, he will start to find and do the jobs that no one else wants to do. He's handy; he's available. He asks, 'Can *I* do that? Can you show *me* how to do that?' He's ready when somebody asks, 'Will you help me break down this interpositives? Will you help me load the camera on the truck? Come with me to help set up.'

"The first thing you know, he starts learning about cameras. He learns to load the magazines and thread the camera. Finally, as he starts learning, someone will say, 'Well, *he* knows how, let *him* do it.'

"You're here; you're learning. Then all of a sudden the opportunity comes—we need a line-up person. 'Well, your go-fer knows about that, so let's give him a chance.' Finally, I have to get another go-fer to replace the one that has moved up. The guy that was an assistant becomes an operator. We always like to promote from within, and our business is growing. I really prefer to train rather than to take from the outside.

"What I'm trying to do," he confides, leaning slightly across the desk, "is to build up a business that operates marvelously without me!" CM

Frank Van der Veer

As this issue of CINEMAGIC was going to press we learned of Frank Van der Veer's death. Long respected in the industry, Frank Van der Veer shared a special achievement Academy Award in 1976 for his visual effects on *King Kong*.

In 1963, after working in the special photographic effects departments of 20th Century Fox, Warner Brothers and M.G.M., he and the late Bill Dorney opened their own photographic effects shop.

His company, which has the reputation of producing some of the finest blue screen work in Hollywood made its mark by contributing to the effects in such films as *Star Wars, The Towering Inferno, The Empire Strikes Back, The Heretic, Clash of the Titans, 1941* and *Flash Gordon*.

With associate Barry Nolan he pioneered work on the first electronic "optical" printer. His effects company continues under the leadership of Barry Nolan and Greg Van der Veer. Frank Van der Veer died on January 7, after a prolonged illness at age 60.

CineMagic MARKETPLACE

For as little as $15.00 you can reach all your special effects fans.

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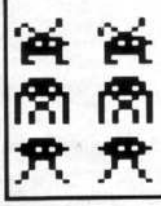

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Smoothing Out the Action

Build a balanced camera crane with easily available materials for about $75.00, and add the smooth camera moves that are the hallmark of professionals to your films.

By KENNETH WALKER

So you thought all camera cranes were big, expensive, hardly-portable monsters meant only for professional filmmakers with huge budgets. Wrong! By using the step-by-step instructions in this article, you can build your very own, versatile WALKERFLEX crane for less than $75 from easily-found materials, a crane that will support the weight of any Super-8 or 16mm camera—even a 35mm movie camera or two!—to give *your* films the fluid, professional look that's a virtual trademark of Hollywood.

Of course, for ease of construction and to keep the price low, low, low, *some* things had to be sacrified—in this case heavy steel construction and hydraulic motors for raising and lowering the crane. You'll have to do the "craning" by hand, but the smooth camera moves that result will be more than worth such a minimum of effort (minimum because the crane is always in a state of balance, requiring only the lightest touch to operate.) The crane will even stay in the position you set it in indefinitely, and can be locked in position if need be. And unlike most Hollywood giants, the WALKERFLEX is very portable: once built, it can be disassembled or reassembled in about thirty minutes! Sound too good to be true? Then read on

Basic Design

First, a bit of painless design theory, to illustrate why the crane should be built "just so."

Stripped to its basics, a camera crane is a simple balanced see-saw or teeter-totter—actually two of them, one on top of the other, joined together at the ends (see figure 1) so that they move together.

The two small ends of the crane *must* remain straight up and down at all times, since platforms for the camera and counterweight will be hung on these. The platforms need to remain level no matter what position the crane is put into. Keeping the ends straight up and down is easily accomplished, by aligning the *pivot points* of both see-saws vertically with each other. (It's important to note at the outset that the upper and lower "arms" of the crane are identical in length, as are the two smaller ends.) The crane *needs* two arms, by the way, to keep the end platforms level.

Raw basics aside, there are fine points of the crane's design that should be discussed if problems are to be avoided later. Anyone who has ridden on a see-saw will remember that both ends (and both people) always go to exactly the same height, since the pivot point is in the center. Designing a crane this way would be a waste of the crane's size and materials, though, because the height of only *one* end—the camera's end—is of any importance to us. The main pivot of my crane is located 1/3 of the distance along its length, *not* in the middle; thus the longer front end can go much higher than it would normally be able to.

This "non-symmetrical" design has a side effect, though: to get the crane to hold a set position in space requires a much heavier weight on the short end, to counterbalance the long end with its camera. The longer the front end becomes in relation to the back end, the heavier this weight will need to be (and the stronger the crane's parts must be to withstand the stress.) A good compromise between all these variables is the 1:2 relationship described above. Since I chose nine feet as the length of my camera crane from end to end (due to availability of materials), 1/3 of this would be three feet 2/3 would be six feet.

Of course the height of the crane's *support posts* also affects how high the crane can go. Making these supports *too* high can result in some problems, though, since this raises the pivot points higher and higher. For example, moving the camera end down to the floor for a particular effect may cause the back end of the crane to hit the ceiling if the shot is being made indoors. And a too-high support may make the crane top-heavy, always in danger of falling over! For my crane, I found that a support post height of thirty inches, or roughly 1/3 the length of the crane, was a good compromise. Used with a nine-foot-long crane, such a support will allow the camera to reach a respectable height of about six feet.

The small level platforms at both ends of the crane, for the camera and counterweight, are not squares but rectangles, and the longer the better. In the case of the camera platform, this allows the camera itself to be out in front of the platform's own obstructing braces, free to pan and tilt if need be. Since you'll naturally be wanting to look through your camera's viewfinder, leave at least an eight-inch space between braces and camera (the front-to-back measurement of a person's head being about eight inches.) My crane's platforms are 24 inches long; even when weighted down they remain rigid, due to their particleboard-and-aluminum construction

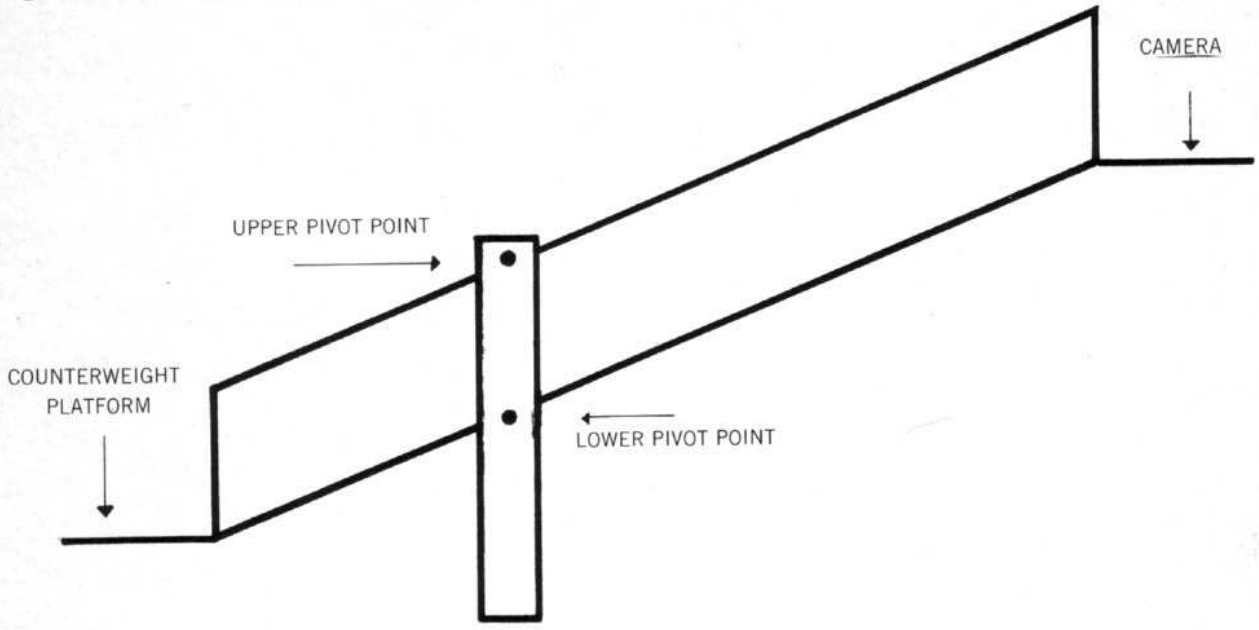
Materials Required

The one quality I looked for when considering materials for this crane was "strength for the money." Using some preplanning, I was able to purchase materials that were standard off-the-shelf items, found at a variety of large and small hardware stores and home improvement centers, that had the necessary strength. Total cost of the materials amounts to approximately $75, admittedly a lot for an "amateur" crane but a pittance compared to its big Hollywood cousins. In fact, the crane can be made for less if you shop carefully.

The two most expensive items are the large three-inch-diameter PVC pipe—polyvinyl chloride plumbing pipe—which sells for anywhere from $13 to $19 per ten-foot length; and the one-inch-by-1/4-inch

FIGURE 1

CAMERA CRANE BASICS



ART: KENNETH WALKER

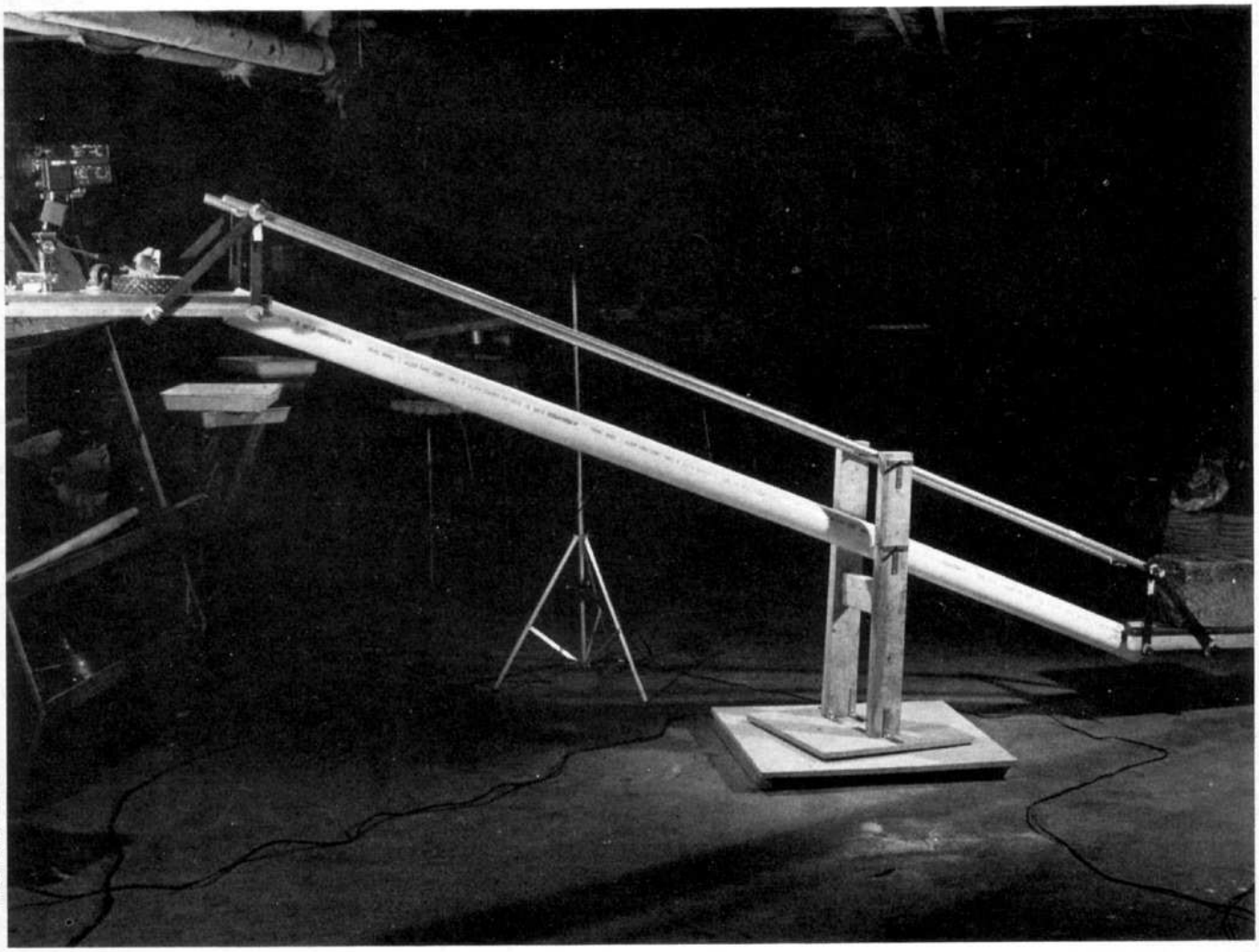
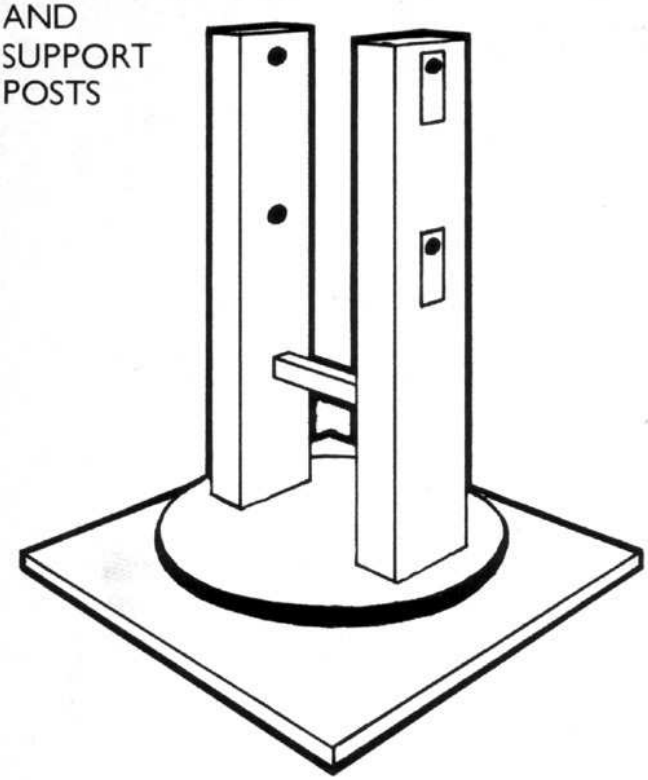


PHOTO: KENNETH WALKER

This sturdy, versatile camera crane is built from readily-available parts.

FIGURE 2

PLATFORM/TURNTABLE AND SUPPORT POSTS



The vertical posts are 30-inch high wood 2 by 4s, spaced 8½-inches apart. The base is constructed of ⅝-inch particleboard and is at least 24-inches square. The steel mending plates are screwed to the outside of each 2 by 4; the ⅜-inch holes will allow for the steel pivot rods.

Oversized ⅝-inch holes are drilled through each support post; a steel mending plate (with its ⅜-inch hole) attaches over this.

aluminum bar stock used for supporting the small end platforms. The main strength (lifting capability) of the crane comes from the PVC pipe. Use only the type with 1/4-inch-thick walls; there is another much thinner type that is totally unsatisfactory for crane building. (By the way, the three-inch-diameter dimension is the *inside* diameter, not the outside.)

The baseplate of the crane is made from particleboard, a very dense and strong wood product that is quite inexpensive—a 5/8-inch thick, four-foot-by-eight-foot sheet sells for about $8. The small platforms for the camera and counterweight are made from the same material.

The 3/8-inch diameter steel rods will be used for holding all the pieces of the crane together, at all the stress points on the crane where there will be movement, and they come in three-foot or four-foot sections for about $3. You'll need enough material to make eight twelve-inch pieces, three for each end platform and two for the main pivots.

The upper arms of the crane do not need to be anywhere near as strong as the PVC pipe, just rigid. I chose steel electrical conduit pipe for these. This material is thin-walled steel, not requiring a great deal of force to drill into, and costs about $5 for a ten-foot length of the one-inch-diameter variety. PVC pipe could have been used for both main arms of the crane, but using two steel conduit pipes for the upper arm is both lighter and cheaper.

The "lazy susan" turntable (an optional part of the crane) is perhaps the only part that cannot be homemade. I purchased mine—a large circular metal turntable with ball bearings—from Edmund Scientific Company, although some large hardware stores also carry it, for under $5.

You'll also be needing eight feet of 1/8-inch-thick aluminum angle that comes in the shape of an "L" (the "L" being 3/4-inch on a side). This will be used in both the camera platform and the counterweight platform. It's available for $6 in six-foot sections.

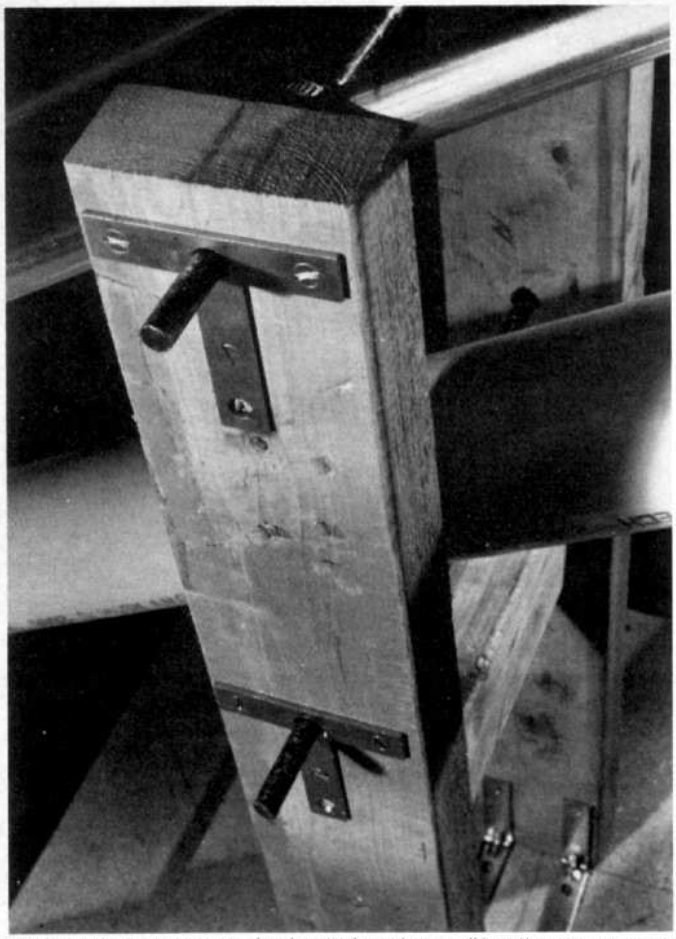
The two side-by-side support posts for the crane are made from lengths of "wall studs" or two-by-fours (hereafter 2 X 4's) available at any lumber yard or home improvement center. You need purchase only one eight-foot or ten-foot length, for about $1.50. Try and pick the straightest and least warped piece. In a pinch, wood can be used to build the entire crane, not just the support posts. In fact, my very first crane (which I now jokingly refer to as my prototype) was built this way. It had a problem, though; it was always on the verge of bending, warping and snapping! Seems the wood I used was rather flimsy (we all make mistakes) and the counterweight—lots of bricks—proved to be too much for such a delicate construction. Lack of money is about the only plausible reason for building a wooden crane, but if you must do so, use 2 X 4s for everything—support posts, arms, the works. (A good example of what appears to be an all-wood crane can be seen in STARLOG'S *Special Effects Photo Guidebook, Vol. 1,* pp. 22-23, holding up a spaceship model.) It can arguably be said that my crane is more difficult to build than an all-wood model; but it's worth the effort for rigidity and long life (and no splinters!)

Making the Job Easier

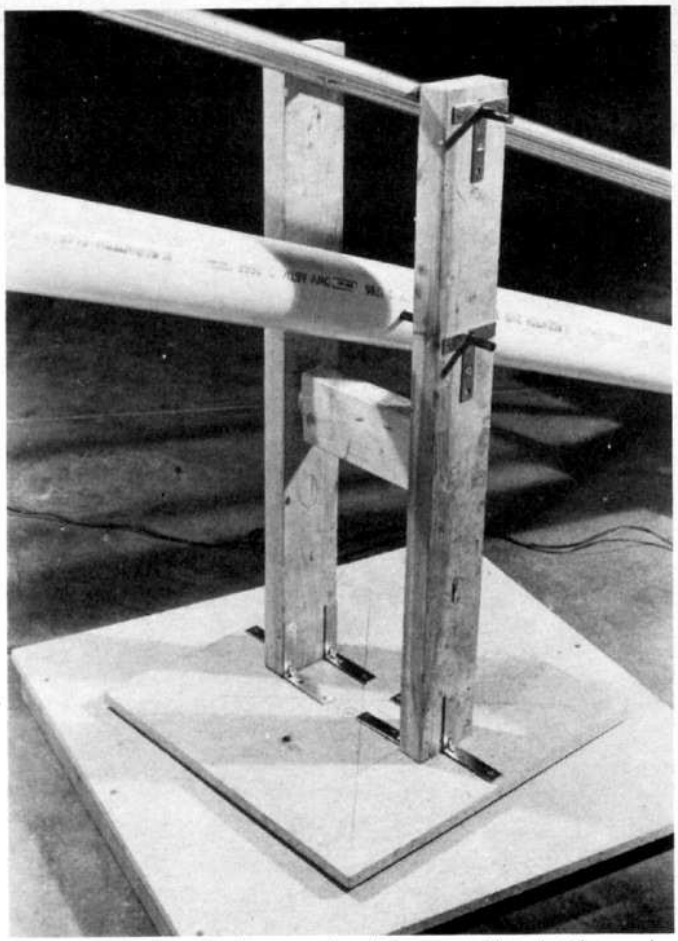
To do a reasonably precise job of building your crane, you'll need to use several tools that may or may not be in your tool box, along with the usual screwdriver and pair of pliers. Probably the most important of these is an electric drill. While you could conceivably drill all the required holes in the many metal pieces with a hand drill, such drudgery would leave you wondering why you ever undertook this project to begin with! A basic "1/4-inch" power drill is completely satisfactory for work on the crane, and can be found "on sale" for as little as $9. Also purchase a set of high speed twist drill bits, thirteen to the set.

You'll need a hacksaw, to cut the aluminum bars and steel rods. A power saw for cutting the wood—either a jig saw or a circular saw—would be a nice time-saving luxury, but isn't absolutely essential.

About the only other "exotic" tool that I would *highly* recommend is a special drill bit called a "Unibit," available from Edmund Scientific Company and other suppliers of small tools. It is made especially for drilling through metal—steel,



The mending plates and steel rods are aligned vertically on the support posts.



Actual construction, showing crane "arm" placement. Note that the wood posts are attached to the wood disc/turntable with large steel L-brackets.

aluminum, whatever. It's really a bunch of drill bit sizes all on one cone-shaped shaft; you just keep forcing it through the hole to make it bigger and bigger. The Unibit is the only tool I know of with which you can easily *and safety* drill into metal without having a full-fledged drill press on hand.

Also in the interests of safety, purchase a bench vise (a relatively small one will do) to firmly grasp the metal pieces you will be working on. I made the mistake of trying to hold down a piece of metal *by hand* while drilling into it, and received some well-deserved wounds for my lapse of sanity. Drill bits have a tendency to "grab onto" a piece of metal, spinning it around like the blades of a lawnmower! So having a bench vise on hand *is* important. . . .

Before You Begin

A note about precision before beginning construction: When building anything from scratch, the more patience you exhibit the more likely the finished product will be to turn out the way you intended. It's no different with this camera crane. It's quite easy to build (honest), but be as precise as you can be. Luckily, almost without exception the length measurements given in this article are not critical. However, the distances between all the *holes* to be drilled are somewhat critical, and if you're sloppy with these measurements—as, for example, with the "verticalness" of the two main pivot points mentioned earlier—the crane will not keep the camera level at all crane heights. But don't panic! This degree of precision is quite easy to achieve, without fancy tools or techniques; it just takes a knack for patience and attention to detail—qualities the special effects enthusiast has in abundance!

Construction Begins!

As mentioned earlier, the length of the two support posts of the crane should be 30 inches. This measurement isn't critical, but the *bottoms* of each piece of 2 x 4 wood do have to be sawn with precision, since this is where you'll be taking additional measurements from later for drilling the pivot point holes. You need to make clean, straight cuts directly across the wood, *i.e.,* at right angles to the 2 x 4s' outside edges. This will guarantee that the wood pieces stand up straight without tilting or wobbling—a major function of these supports. Lay these two posts aside, as the drilling of the pivot holes will come later.

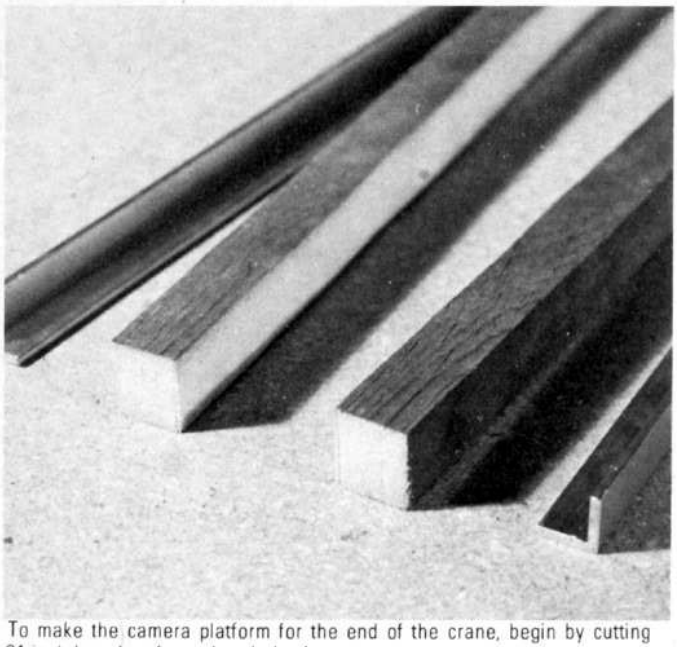
Measuring and Cutting The Steel Pivot Rods

The main pivots of the crane are made from 3/8" diameter steel, as are all the long rods in the two end platforms. Cut eight twelve-inch sections with a hacksaw, then file the ends to get rid of any remaining burrs. Lay these aside.

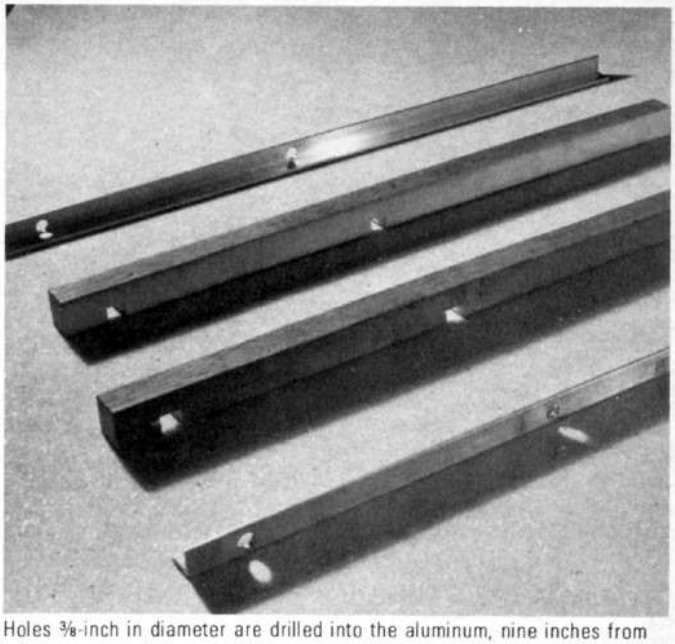
Making The Aluminum Parts

The four aluminum bars at each end of the crane are cut from the 1-inch by 1/4-inch aluminum stock. They are the major strength of the small platforms, helping to keep the camera level, holding the heavy counterweight, etc. These bars need to be cut and drilled with precision in order to hold the camera platform perfectly horizontal. A ruler or yardstick is OK for this phase, but be precise! The aluminum parts of my own crane have these measurements: the "vertical" aluminum bars are 10-1/2 inches long, the 45-degree angle bars 14 inches long. Note that the only truly *exact* measurements needed are the distances between the two holes to be drilled in each bar. Between hole *centers* on each "vertical" bar is 9 inches; on each 45-degree angle bar, 12-3/4 inches. Only after cutting all eight pieces (and filing any rough edges) should you begin drilling. Drill two 3/8-inch holes into one of the 10-1/2-inch "vertical" pieces (these holes are to allow passage of steel pivot rods later). There should be a hole at each end of the bar, spaced exactly nine inches from hole-center to hole-center. Once one piece has been drilled, you can use it as a "master drilling guide" for the others. Lay it over another undrilled "vertical" piece, line up the two and clamp them in your vise. Now you can place your drill's bit into the holes of the "master" as a perfect guide for drilling the raw metal underneath. Continue in this way until all *four* vertical pieces are drilled, two for the camera platform and two for the counterweight platform. Note that there are two identical sets

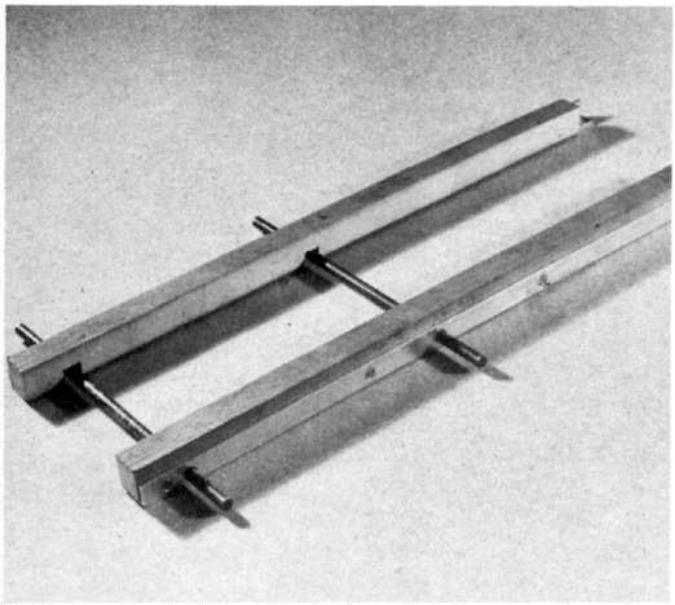
FIGURE 3 THE CAMERA PLATFORM



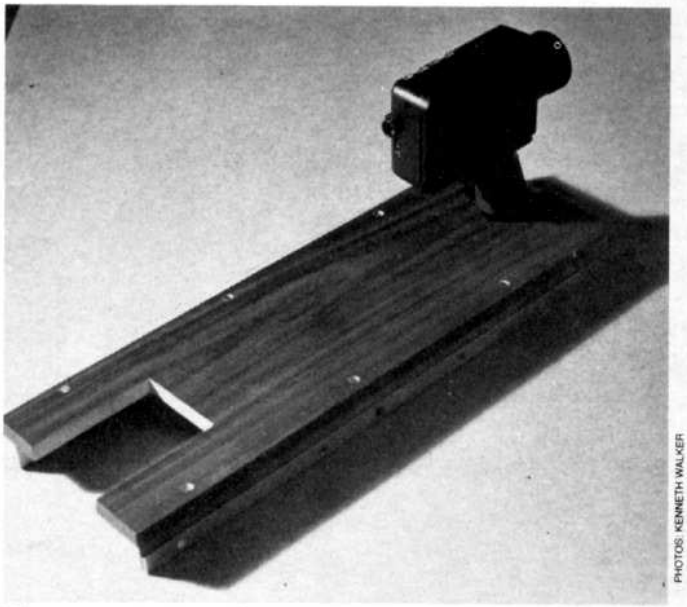
To make the camera platform for the end of the crane, begin by cutting 24-inch lengths of wood and aluminum.



Holes ⅜-inch in diameter are drilled into the aluminum, nine inches from hole center to hole center. The wood strips have somewhat larger holes (or channels) cut into them.



Drill four more smaller holes in the aluminum pieces for screws. Screw the aluminum to the wood strips making sure to align the large holes in all of the pieces.



PHOTOS: KENNETH WALKER

Using carpenter's glue and/or screws; attach the 24-inch long by 8-inches wide particle board platform to the two underlying strips. Cut a 3-inch long by 4-inch wide channel in the platform, for clearance for the PVC pipe. Note that the counterweight platform is identical to this camera platform.

of four pieces to be cut, since the counterweight end of the crane is an exact copy of the camera end.

Making The Support Posts

Two "main pivot holes" must now be drilled in each 2 X 4 support. These need to be *oversized* holes, so that the steel pivot rods which will go through them later will not touch the wood itself. Why not? These two posts will be holding up the entire weight of the camera crane—camera, arms, counterweight, everything. At the pivot points, steel rods will "attach" the crane's arms to the two posts. These points of stress must be steel against steel, not steel against wood, for less friction. How to keep steel away from wood? By drilling oversized holes, and by attaching steel "mending plates" *over* these larger holes, plates which have the smaller-diameter, correct hole size (3/8-inch) drilled in them. Begin by clamping the two 2 X 4 wood pieces together so that they overlay each other; if you don't have clamps, use strong tape. Make sure that the *bottom* ends of the 2 X 4s are lined up and even with each other. Draw a straight line down one face of this wood block, from top to bottom, right down the middle. On this line, mark the *top*-most pivot hole to be drilled in the wood. (On my crane, this hole is exactly 29 inches from the base of the 2 X 4.) Now, using an oversized drill bit—something on the order of 1/2-inch or 5/8-inch—drill the top-most pivot hole through both pieces of wood while they are clamped together. (Drill bits of this diameter and length *are* available to fit regular 1/4-inch electric drills.) It's quite necessary to drill these holes straight into the wood, not at any slight angle. After drilling the first hole, put the 2 X 4 block aside and proceed to drilling the mending plates.

Mending plates come with several predrilled holes; pick one and enlarge it to 3/8-inch. Remember to CLAMP THE METAL DOWN when drilling. Drill four mending plates in this fashion. File the holes smooth. Attach one mending plate to each 2 X 4, over the previously drilled

hole, using large-diameter screws at least one inch long. The mending plates will be helping to hold up the weight of the entire crane; attach them well! The hole in each plate should be centered over the hole in the wood. Pass a previously-cut steel rod through this long hole. The rod should pass through both mending plates without touching any wood. The location of the *lower* pivot hole is exactly nine inches below this, again along the centerline. Measure and drill it accurately, then attach the remaining two mending plates over the open ends of this hole as before.

Drilling The Pipes

Next comes the drilling of identical holes into the PVC pipe and the two electrical conduit pipes, to admit the various steel rods later. The three 3/8-inch holes will be drilled in one side and out the other, directly through each pipe's "center." Drill a hole at each end of each pipe, two inches from the ends; plus the "main pivot hole" exactly three feet from one end. As mentioned, the drill bit should pass directly through the *center* of each pipe, not off to one side (see figure 3). A drill guide would be of use here, but a satisfactory job of drilling alignment can be done "by eye." Beware that if the drill bit doesn't go in as straight as possible, it will not pass through the center of the pipe nor come out the other side at the right place, creating plenty of line-up problems later on. Note that the entrance holes along one side of a pipe need to follow a straight "drilling line" down the pipe's length. Sometimes, PVC and conduit come marked with faint manufacturer's lines that serve the same purpose, but not always. If in doubt, draw this line yourself.

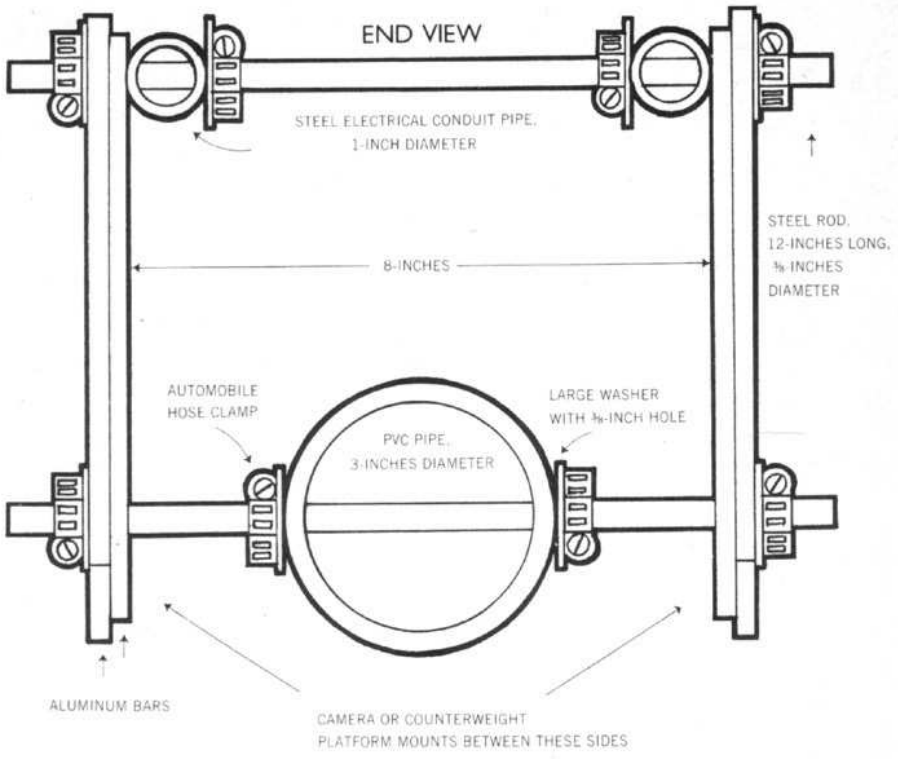
To make each hole in the *steel* nice and smooth, with no rough edges, first drill a small "starter hole" all the way through—say, with a 1/16-inch bit. Then enlarge the hole to 3/8-inch with the Unibit. (A regular 3/8-inch drill bit can be used, but the results will be neither as smooth nor the job as easy.) The PVC pipe is easy to drill into, and should give you no trouble.

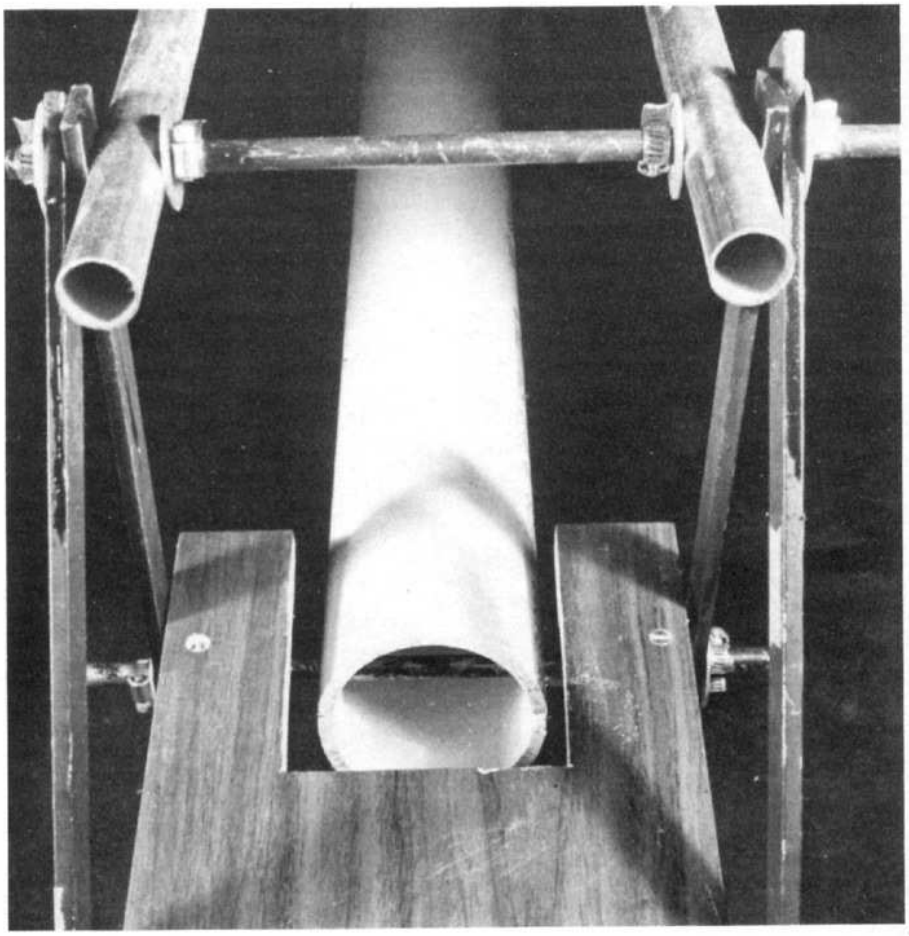
Test your drilling accuracy after finishing all three pipes by "skewering" them together. Pass a steel rod through all three pipes' "middle" holes, so that the pipes are touching side-by-side; then pass rods through the end holes of all three. If everything went as planned, the three steel rods should be in place cleanly but snugly. Dismantle this temporary structure, and lay the pipes aside.

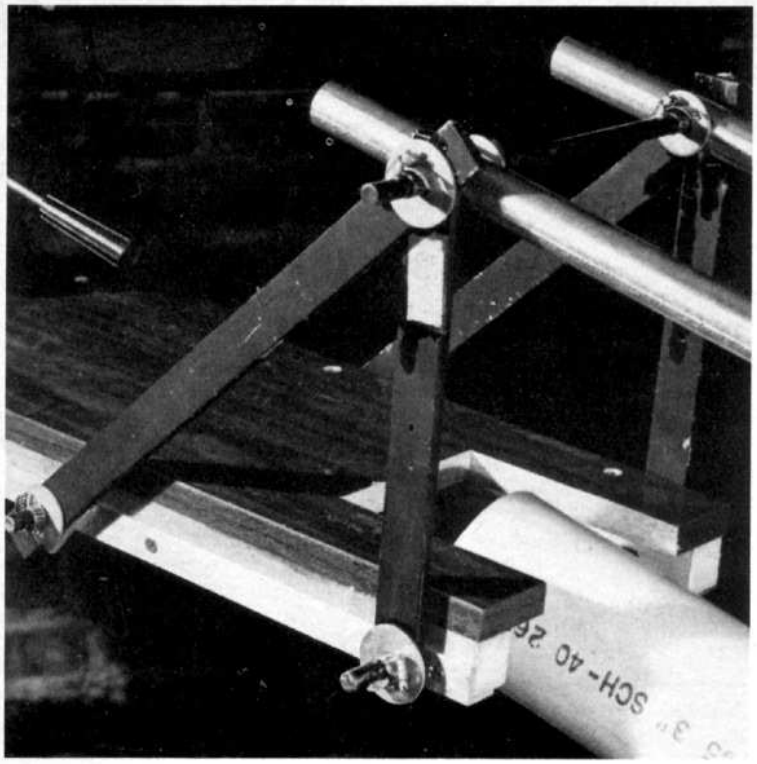
Making The Small Platforms

By following the "how-to-do-it" photos you should be able to construct two identical platforms, one for the camera and one for the counterweight, using one-inch-by-one-inch wood strips, the aluminum "L"-angles, and some particleboard. The width dimension of these platforms is not arbitrary; it is eight inches wide to match the outside dimension of

FIGURE 4 PIPE CONSTRUCTION

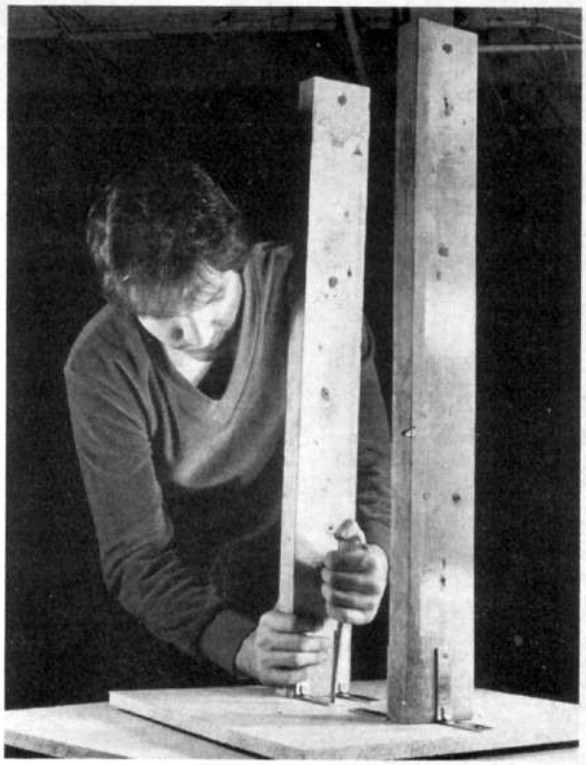






PHOTOS: KENNETH WALKER

The completed camera end of the crane, prior to painting. The counterweight end is built identically. Note the aluminum spacers between the 45-degree angle bars.



Walker screws the support posts to the baseplate of the camera crane, using strong steel "L" brackets for sturdy construction.

the upper "arm" of the crane (the two separated steel pipes) which will be mounted later.

Putting It All Together

Now you're ready to take all the previously machined parts and make a camera crane! Assuming you are *not* using a turntable as the base of your crane (the simpler way to go) join the 2 X 4 support posts directly to the particleboard baseplate with strong steel L-brackets. The 2 X 4s are mounted 8-1/2 inches apart, with their mending plates facing the outside. Note that there are three L-brackets to each 2 X 4; I used four-inch brackets. Once affixed to the baseplate, brace the 2 X 4s a little less than halfway up with a piece of wood screwed between them.

If you do plan on using a metal turntable like I did for adding greater versatility to the crane, there is a definite order to the construction of the whole support. Involved are the 2 X 4s; the turntable; the baseplate; and a large square of particleboard (hereafter called the wood disc) that goes between the 2 x 4s and the turntable. To describe this procedure in detail would take pages. Essentially it involves screwing the turntable to the underside of the wood disc first; then this combination is bolted to the main baseplate; and finally the 2 X 4s are screwed to this whole unit using the L-brackets. The important thing is to drill enough "access holes" for your screwdriver in all the wood pieces, *before* actually putting anything together. (This is necessary when mounting a turntable between two surfaces.) Construction of this "revolving pedestal" definitely takes some planning ahead, so pay attention to the proper sequence of things.

Now the large drilled pipes, the "arms" of the crane, are mounted. Start by attaching the PVC pipe between the 2 X 4 supports. Pass a steel rod thought the *lower* holes in the post (through the mending plates) and also through the PVC pipe. The steel conduit pipes are attached next, with a six-inch space left between them (so that their joined-together outside dimension is eight inches—see figure 3. Attach these pipes between the top-most pivot holes in the support posts, with a steel rod; the pipes are kept separated by screwdriver-tightened hose clamps and large washers, acting as "stops" along the steel rod.

Attach the prebuilt platforms to the ends of the crane. Follow the close-up photos and figure 3, using the steel rods and aluminum bars. Don't forget the small aluminum spacers required behind the 45-degree-angle bars (see close-up photo.) Note that hose clamps and washers keep all the parts together. The use of such fasteners makes assembly and disassembly of the crane quick and easy.

Spray the entire crane with dark paint to cut down on light reflections (I chose blue because it was photogenic!) Be careful not to get paint in the ball-bearing turntable.

A final option would be to disassemble an old tripod head and attach its panning and tilting mechanism to the crane's camera platform. This will make the crane even more versatile.

Your crane is now ready for use!

A Novel Use

You've all seen examples of *animated* crane moves in the many annual puppet animation specials on TV. Believe it or not, your newly-built crane can be used for filming animation, too. What is required for this is a very large and precise pointer-and-scale system drawn on the crane in some way so you'll be able to see and gauge every minute movement. What is also important is to be able to *lock* the crane in its positions to eliminate the chance of unwanted movement during actual animation photography. This can be done by replacing the lower "main pivot" steel rod with a similar-diameter threaded bolt. Place this rod through the 2 X 4s and the PVC pipe as before but this time *secure* the PVC to the threaded rod using wing nuts. Over the rod's protruding ends also attach large wing nuts, which can then be tightened against the outside of the 2 X 4s to lock the crane in position.

Optional Tracking for The Crane

Camera mobility is of course the reason for using a crane in the first place so why have such a useful tool anchored in one place? Here's a novel approach to making a smooth track for your crane that will free it from its static position and make possible combined crane/dolly shots, a truly professional cinematic effect. (I can't take credit for this idea, though; I saw such a system in use while visiting the set of *The Deadly Spawn.)*

The track consists of ten-foot lengths of two-inch-diameter PVC pipe. Each of the two "sides" of the track is made up of *two* PVC lengths bolted together so that they are touching side-by-side. This creates a channel between the two lengths down which a hard rubber swivel caster (wheel) can ride. Mount four wheels to the underside of the crane's platform and VOILA! CM

PHOTOS: JOHN DODS

Ken Walker with his completed "Walkerflex" camera crane. Note the tripod head that Ken mounted to the camera end of his crane for added versatility of movement. The crane can be built for about $75 with easily found materials.

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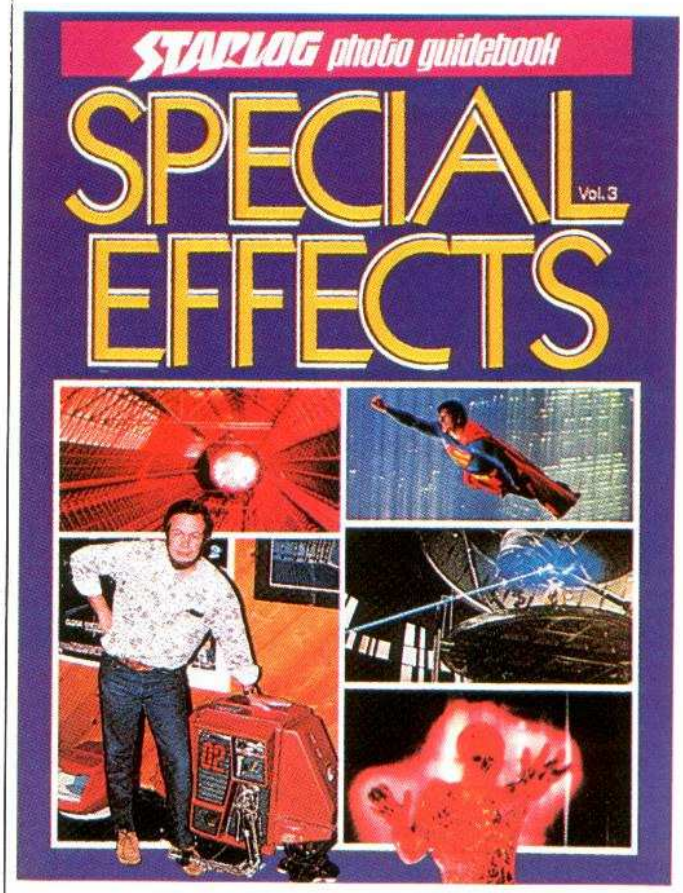

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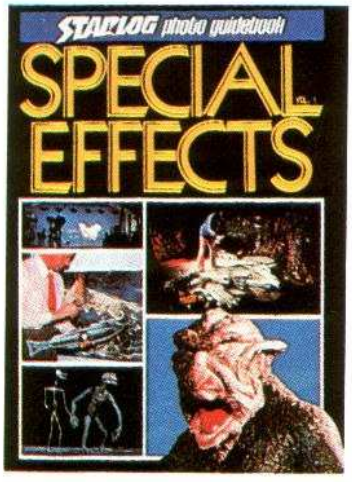

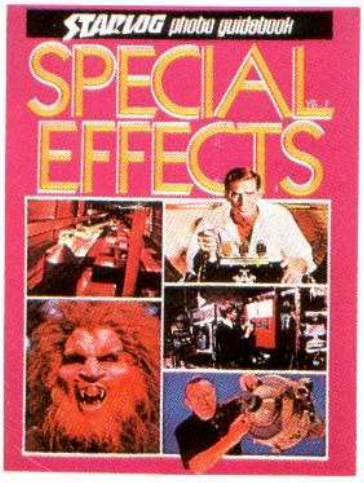

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