

Electronic SFX: A Box Full of Sound, II

STARLOG presents
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THE GUIDE TO FANTASTIC FILMMAKING

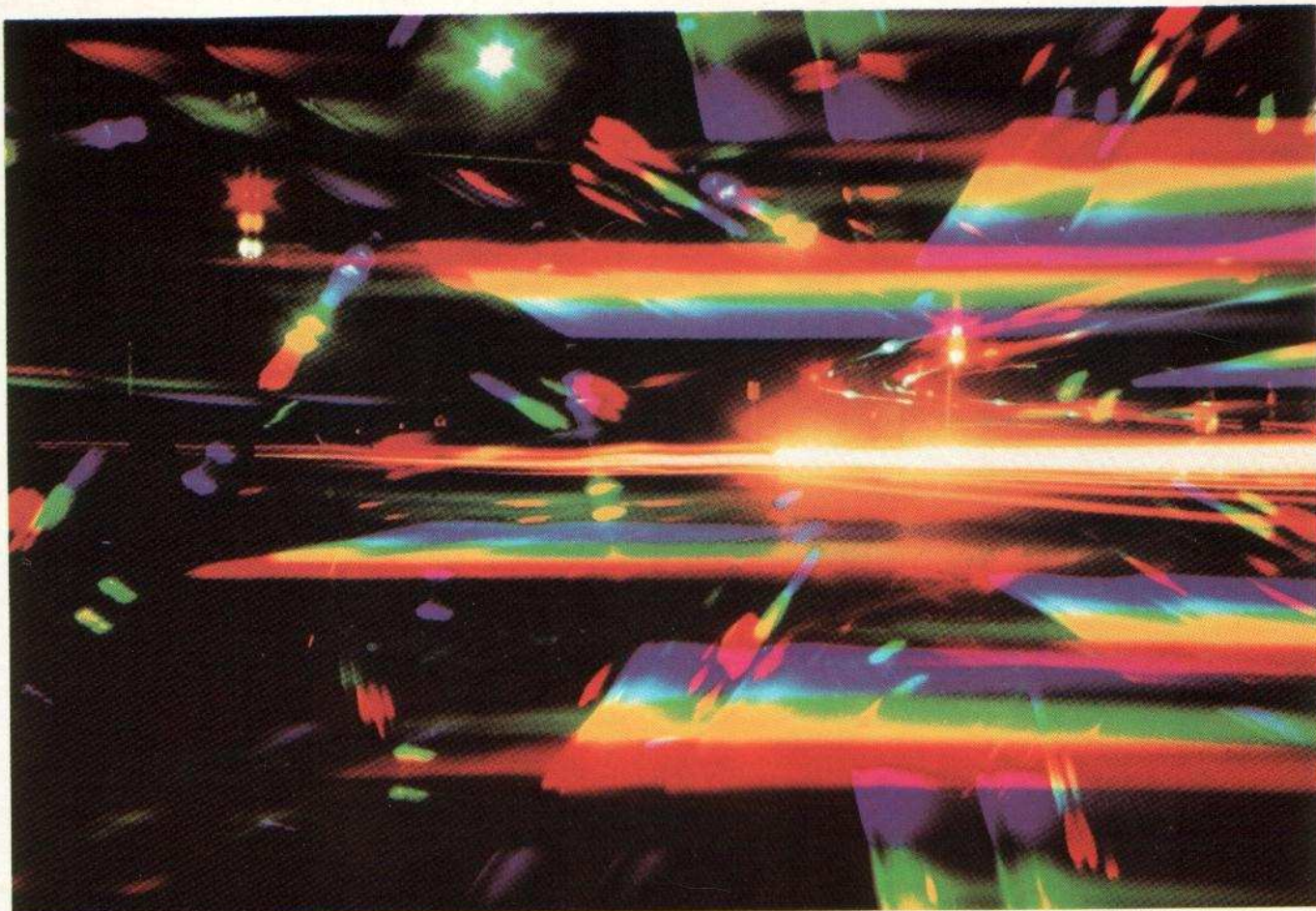
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Issue #18

Profile:
"Dance Macabre"
A Graveyard
Nightmare

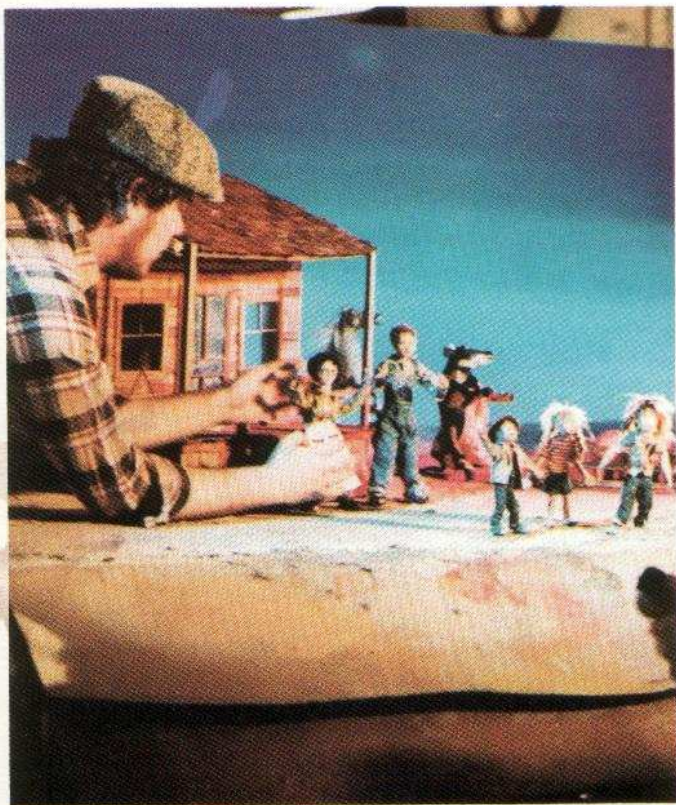
**Shoes For
Dinosaurs:
Tie-Down
Techniques**



A Handy Guide to
MAKING MONSTERS



Above: Managing Editor John Clayton squeezed off this shot to demonstrate the effect produced by Edmund Scientific's Holographic Rainbow Film. This special filter fits over your camera lens. Point light sources become brilliant star bursts of every color of the spectrum. This shot is a time exposure of car headlights coming around a corner. The Edmund Scientific Holographic Rainbow Film can enhance slit scan effects. See the Grip Kit section on page 20.



Left: Paul Mandel animates puppets for *A Summer Rain Dance*, which was a segment of the *Children's Television Workshop* aired on PBS. The armatures were made by Dave Allen and Tom St. Amand. Tie-down holes were drilled through the hard clay surface into heavy masonite board. See Mandel's article on tie-downs on page 14. **Above:** John Dods has his hands full with the monster he created for *The Deadly Spawn*. See Dods' handy guide to making monsters for the movies on page 6.

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Chris Stevens has re-designed his sound effects generator to improve its performance and get the "bugs" out. This "Box Full of Sound, II" is the "sequel" to the sound effects generator that was described in CINEMAGIC #14.

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CINEMAGIC/SVA Short Film Search Grand Prize winner Al Magliochetti talks about the making of his graveyard nightmare, *Dance Macabre*. By John Clayton.



Issue #18

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About the cover: An alien monster gobbles down the last few morsels of its meal of human flesh. Special Effects Artist John Dods created this hideous creature for the Filmline Communications production, *The Deadly Spawn*. That's Dods' hand in the spawn's mouth. See Dod's article on page 6. Cover photo by John Dods.

Editor's BENCH

A Word of Caution

Over the past five years or so that I have been writing special effects articles for STARLOG, rarely has anyone, professional or amateur, given much mention of the health hazards of the profession. Special effects artists live in a closed little world filled with volatile solvents, corrosive acids, fuming plastics and other substances that will etch lungs, skin and years from your life as well as the model you have been staying up late nights to build. Some tiny, unventilated shops I have visited are filled with more carcinogens than the Surgeon General's laboratory, but without the benefit of even an exhaust fan, a pair of rubber gloves or goggles.

A friend or mine, who has been building puppets in England for Jim Henson's forthcoming *The Dark Crystal*, Lyle Conway, an extremely talented sculptor and puppet creator, took a few moments to send me a copy of a pamphlet entitled "Health Hazards Manual For Artists," which is chock full of descriptions of the toxic substances which special-effects artists come in contact with on a daily basis and some of the things that these substances can do to lungs, kidneys, liver, blood and your life span in general. He also enclosed a three-page letter, portions of which are excerpted below:

"... Having read your magazines for many years, I have noted especially in CINEMAGIC, many of the processes used by fans and pros in makeup and special effects. It is disturbing that most people don't realize the inherent dangers involved. Even professionals laugh-off suggestions that they may be risking lives and health. Amateurs take even greater risks, I fear, in that they (bless their hearts) are constantly experimenting on themselves and friends. They mix chemicals, solvents, adhesives and resins without realizing what they may be doing to themselves.

"Even pros have made life casts and let lime from the plaster seep into their subject's eyes. Fingers have been lost from plaster catching on wedding rings and cutting off circulation. Even though alginate has been used for many years, plaster is still in use, especially with amateurs, because it is so cheap.

"Adhesives, spirit gum and their solvents are dangerous to lungs and skin, especially when you consider the number of times the novice applies and removes prosthetics while experimenting.

"The chemicals used for mixing urethane foams are deadly! As they cure they release cyanide gas. After curing, if you cut or sand them, the gas is released and the particles are an irritant. I have seen pros sanding and hot cutting urethane in confined areas with no ventilation or safety masks. By safety masks, I don't mean paper painters masks—they offer no protection against fumes.

"Epoxyes and fiberglass are hazardous! Some catalysts can blind if they come in contact with the eyes. The fumes are hazardous—even after they cure, the resins fume. That's why I don't like the idea of using fiberglass for over the head masks.

"Be careful when cleaning up. Don't use solvents on your hands. A friend used to have a container half-filled with benzene that he would rinse his hands in! Many chemicals are carcinogenic and are readily absorbed through the skin.

"I glanced over to my workmate and was astonished to find that he was using a little jeweler's blowtorch to join to small bits of metal which he had set on top of a gallon can of paint thinner!"

Lyle goes on to say that he tends to over react about safety, but I disagree. Your life is worth being extra careful about. When I was in theatre school, I watched our shop foreman slice off three fingers of his left hand in a radial arm saw, simply because he wasn't paying proper attention to what he was doing.

The pamphlet "Health Hazards Manual For Artists" sells for \$3.50 plus 50¢ postage and handling from The Foundation for the Community of Artists, 280 Broadway, Suite 412, New York, NY 10007. Unless proper precautions are being taken, the materials you are working with may be slowly killing you. The pamphlet recommends quite a number of safety procedures, devices and where to get them. Yes it's important to get that image on film, but don't include your life in the budget.

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MAKING MONSTERS

By JOHN DODS

Let's make a monster movie!" That's what *Deadly Spawn* producer Ted Bohus kept saying. I was interested but we didn't have the money to produce a theatrical feature. I really wanted a chance to build a creature that was different from what you usually see in monster movies—something that didn't look like a guy in a rubber suit. Later, when Ted called and said "I've got the money!" I started sketching deadly spawns. Keeping in mind the restrictions of what was going to be a low budget production—I came up with several concepts for the appearance of our beast; they were far from human.

In *The Deadly Spawn* a strange life form emerges from a fallen meteorite to begin eating people, growing and repro-

ducing—all at an alarming rate. Fifty various sized constructions—including 30 functioning mechanicals—were built to help us depict this alien invasion; these included spawn offspring in various growth stages and their six-foot tall, three headed mama.

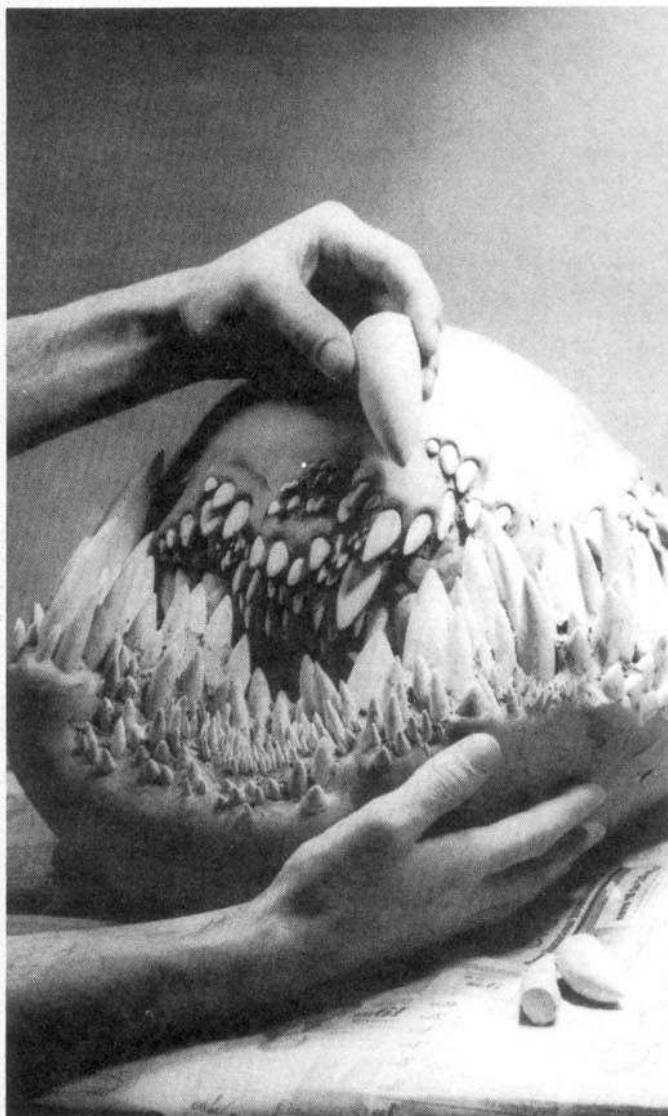
Working on *Spawn* gave me the opportunity to work with many materials—including some that were new to me; Cinemagicians are likely to find their usefulness wide ranging. The addresses for suppliers of materials mentioned here will be listed at the end.

THE MOTHER SPAWN

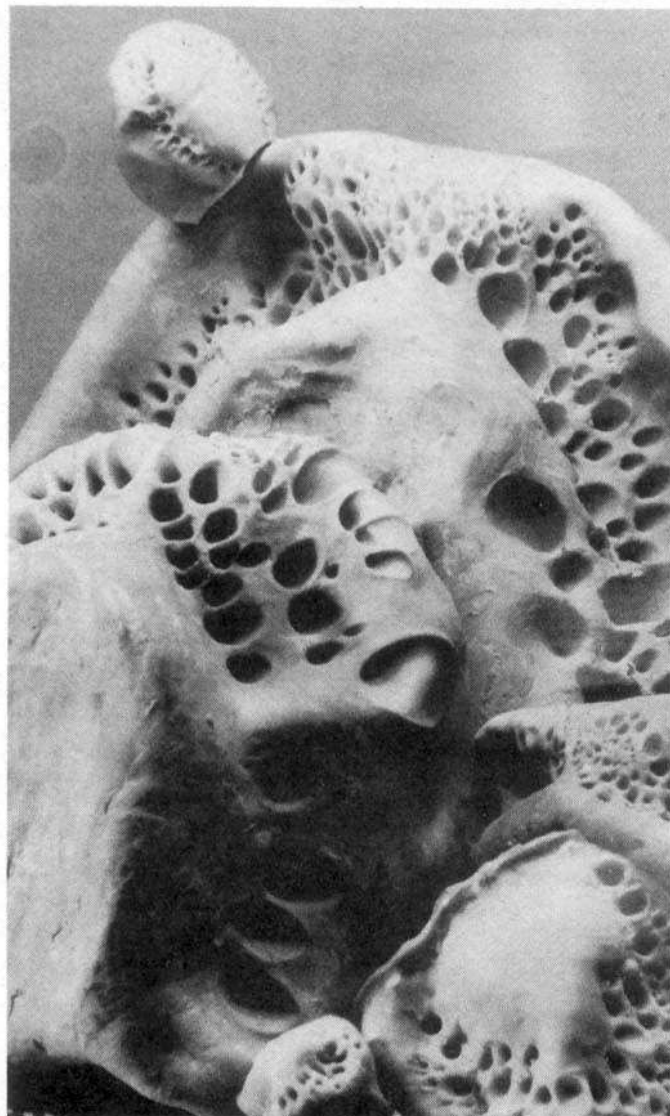
Building the mother spawn began with the sculpture of hundreds of teeth using a

material called Sculpey. Sculpey is a lot like clay but when you bake it in an oven (15 minutes at 250°) it hardens. The hardened teeth—ranging in size from 5 inches long to as tiny as a pencil point—were pressed into the gums of three clay spawn skulls.

I then had to duplicate the toothy creations in hard plastic so they would be more durable. Many layers of thick mold-making rubber were applied to the sculptures over a 10 day period. Before removal, the resulting molds were heat treated in a 300° oven for 20 minutes. Rubber that has not been heat-treated (vulcanized) in this way can be stretched out of shape permanently; vulcanized rubber will always "remember" its original form and return to it.



The largest of the mother spawn's heads is shown here in the final stages of sculpture—almost ready to be molded in latex rubber—the next stage in producing a durable structure of dental acrylic and polyester resin materials. The Sculpey teeth are placed into the clay gums.



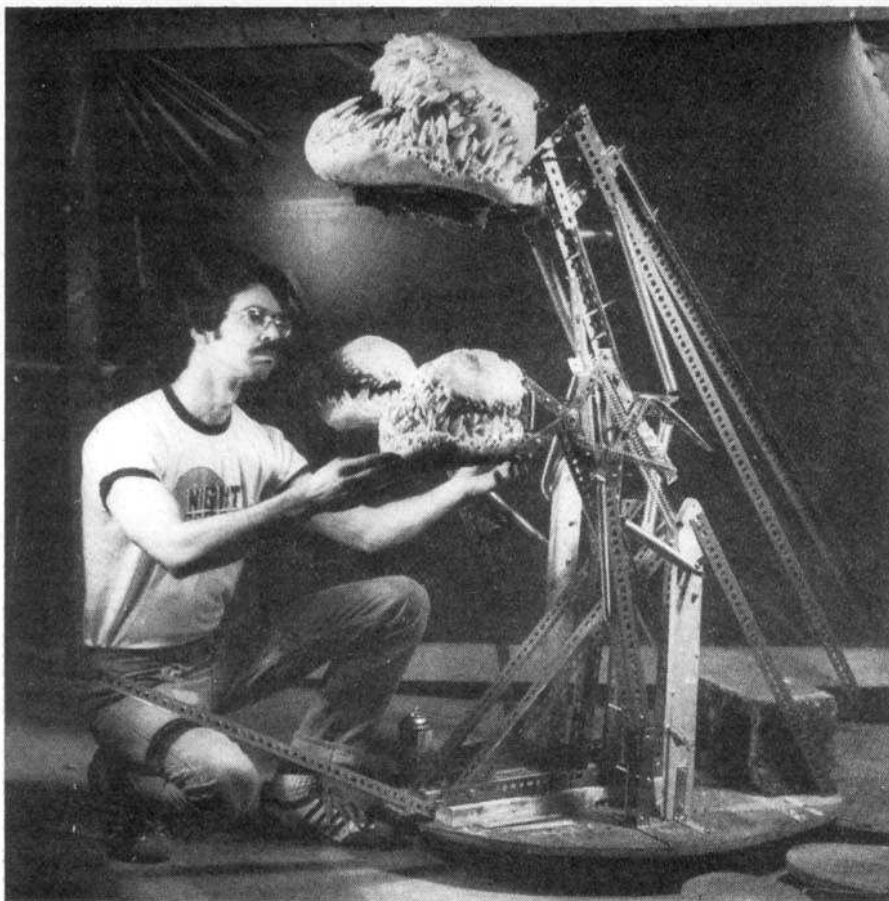
The latex rubber molds produced from the Sculpey constructions are here turned inside out to show the tooth impressions. The latex was built up over the constructions over a period of ten days. Before removal, the molds were heat treated at 300 degrees for 20 minutes to vulcanize them.

The molds were removed from the sculptures and scrubbed clean with acetone. Positives were made using Jet Dental Acrylic color #6 (the color most popular with dentists according to the salesman). This plastic material was applied to the insides of the molds in small sections—the fast hardening liquid being worked into the points of the deep mold cavities with a fine wire. I reinforced this thin covering with (cheaper) polyester resin—the kind available at auto body shops with chopped fiberglass mixed into it. Tooth polish and a scrub brush made the teeth shine.

The mother spawn was controlled like a puppet by as many as six people situated low to the ground in back of the construction. The operators were hidden by darkness, camera cut-off, and the bulk of the monster. One operator rode inside of the structure manipulating one or both of the side heads. Others worked the main head, arms, and body movement.

The substructure of the mother spawn looks like somebody had some fun with an erector set; it provides the needed support and control for the heads. The weight of the heads was counterbalanced with springs; gentle pressure would move the heads and necks forward and backward. The jointed mouths would open and close through manipulation of a hand control which also governed the head tilt.

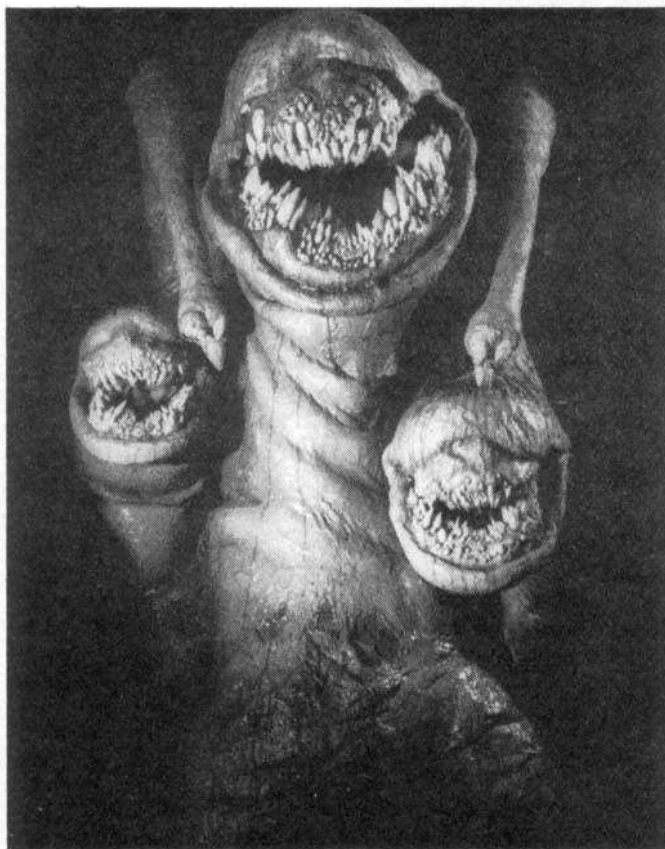
In *The Deadly Spawn* the mother creature moves almost in slow motion (kind of like a giant slug), its speed held in check by inertia and its own massive weight. The en-



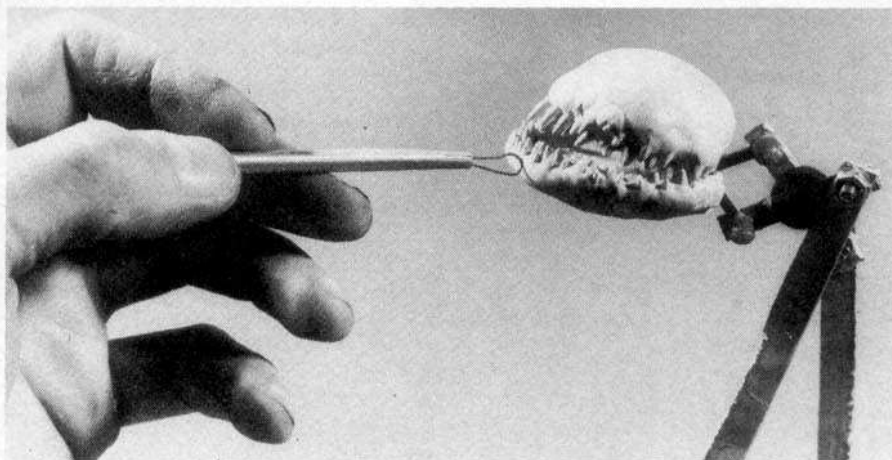
The mother spawn's substructure—built by Dods and Greg Ramoundas—is shown here finished and ready to be covered with foam rubber. The heads were cast from rubber molds using dental acrylic, polyester resin, fiberglass and lots of loving care.



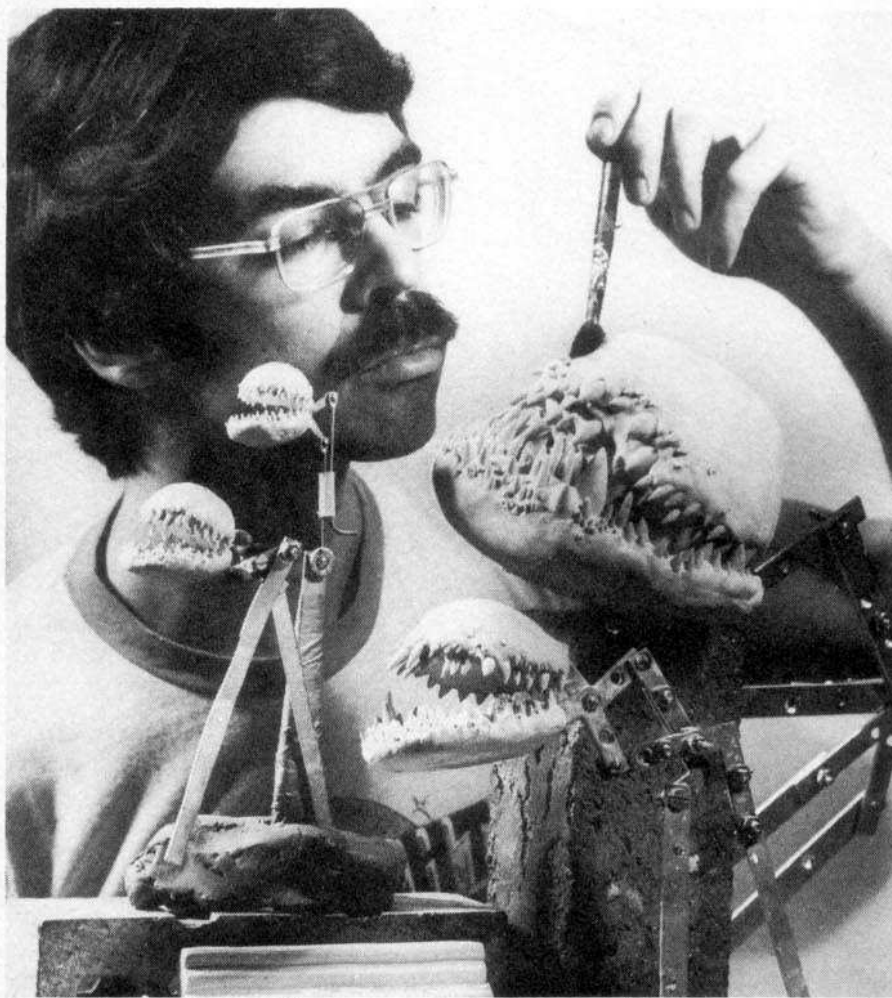
John Dods uses sheets of foam rubber (stapled together) to create the mama spawn's shapely figure. Further refinements are made with paper toweling soaked in liquid latex rubber. Note the "giant erector set" armature that is used for mechanical control of the ghastly beast.



The completed mother spawn as it appears in *The Deadly Spawn*. The construction is five-and-one-half feet tall and is made of metal, foam latex rubber, staples, paper towels, liquid latex and lots of denter resin. The construction was created by John Dods and Greg Ramoundas.



"Sculpey" was the material used to create the finely detailed skulls of the baby spawns. The molds were then made of 50% Hydrocal and 50% Ultracal and 50 constructions were made from four different sculptures. Teeth and mechanics were inserted after the babies were produced in R&D foam latex.



Dods works on putting the finishing touches on the four baby spawn skulls. Note the armatures that allow for movement of the monsters' jaws. These hungry little alien creatures love the taste of human flesh and are graphically shown snacking on several victims in *The Deadly Spawn*.

tire structure moved on wheels that fit into a tracking system constructed from plumbers' PVC tubing. This provided the very smooth movement we needed.

The monster's skin was built up on top of the metal skeleton in layers. Half-inch foam sheeting was cut and stapled together to form the basic shape. Refinements were added using paper toweling soaked in thick latex mold-making rubber. Fans and hair dryers speeded the drying process. The spawn was painted with latex

base wall paint with about 30-40% liquid latex added in order to keep the paint from cracking and peeling as the skin moved and flexed.

During the shooting the mother spawn had to be "made up" before every take. Spawns are very slimy. Initial experiments with children's toy store variety slime gave way to a combination of mineral oil and rubber cement. This looked good but the oil rotted the rubber and the rubber cement was a nightmare to clean up. Execu-

tive producer Rita Hildebrandt suggested that we try thickening plain water with corn starch; this produced the best looking slime of all and at 65¢ per gallon it was super economical too (rubber cement costs about \$20.00 per gallon).

BABY SPAWNS

When a deadly spawn reaches a certain growth stage it reproduces. Before the movie is half over we introduce several dozen new characters into the story: rapidly growing baby monsters.

In clay, I sculpted four small creatures each representing a baby spawn in a different stage of growth. These ranged from six inches to three feet in length. Molds were made of the sculptures using a mix of 50% Hydrocal and 50% Ultracal; these are plaster-like materials that yield molds much harder than ordinary casting plaster. This extra hardness was needed to insure mold durability during the repeated use the five molds were subjected to to produce over 50 constructions.

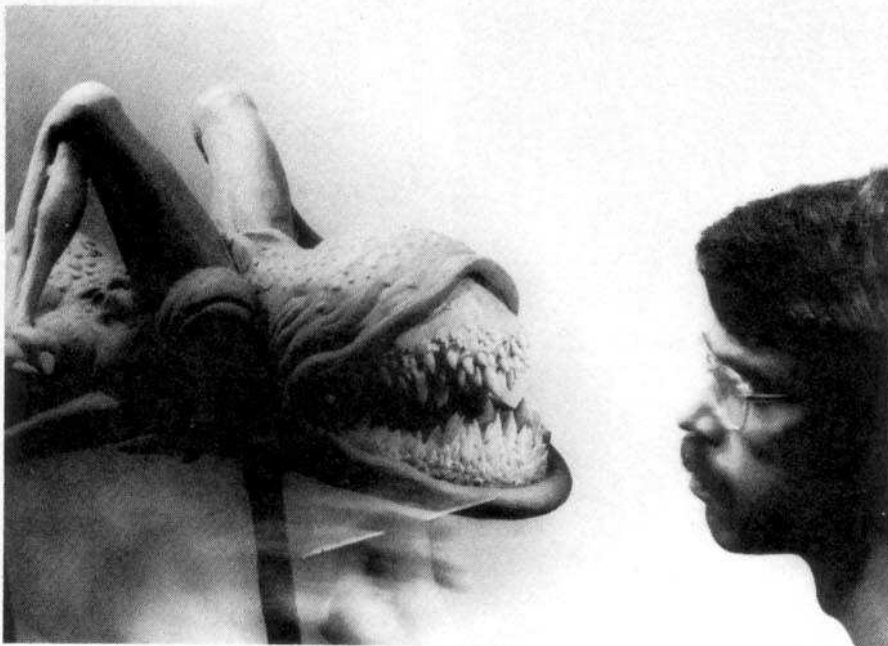
R&D brand oven-cured foamed latex was used to produce most of the smaller spawn babies. The plaster molds were greased with castor oil or rubber mask grease paint (which I like better because unlike castor oil you can make about three positives without regreasing). The liquid foam—frothed with an electric mixer—was poured into each mold cavity to the point of overflowing and the mold halves were closed tightly. The excess foam came out through a large hold in the mold's underside. This method never resulted in the air pockets commonly associated with injection processes.

The largest mold was over three feet long and would not fit into my oven. So a (more expensive) Isofoam "cold foam" process was used for this. This is a two part system that begins to foam by chemical action after parts A and B are vigorously mixed together for about 20 seconds. Effects assistant Sharon Levine and I mixed a series of small batches and gradually filled the large mold cavities almost to the brim. Then a final large batch was mixed, poured quickly, and the mold closed just as the foam was beginning to expand to fill the remaining space. In this process, the mold is not only greased conventionally, but is also coated with a layer of liquid latex "skin" before any cold foam is poured. This provides a smooth surface to the model (the cold foam alone has a very coarse texture) and keeps the cold foam from adhering to the plaster.

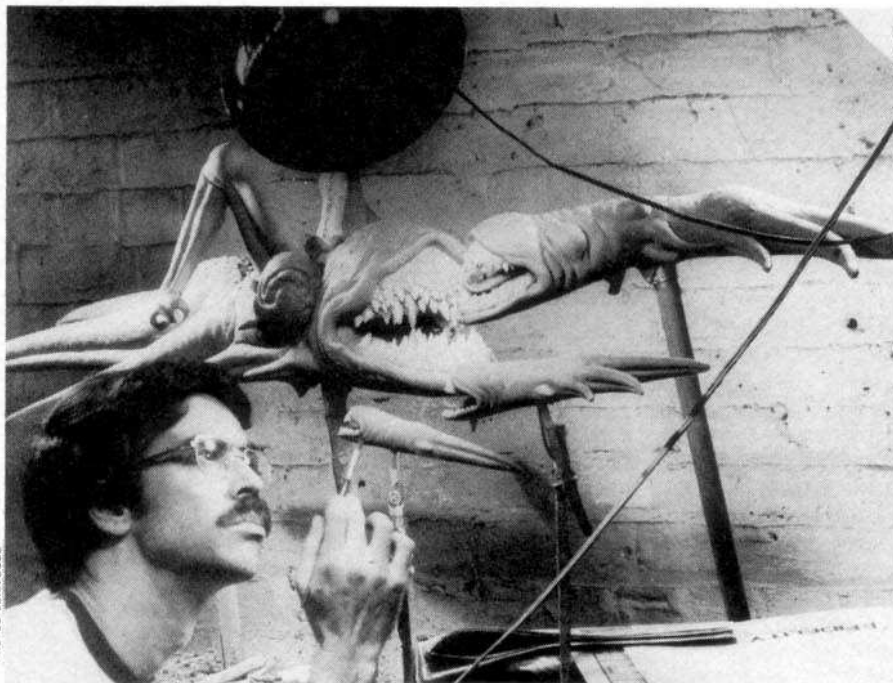
After the foam babies were produced, the teeth and mechanics were inserted; certain areas were hollowed out of the foam using scissors and tweezers. Super glue proved to be a good adherent between the rubber lips and the plastic teeth.

PLASTIC FLESH

During *The Deadly Spawn* some scientifically oriented teenagers find a dead baby spawn and decide to dissect it in an effort to figure out what it is. For this se-



Sculpting the largest of the baby monsters. At this stage of growth the little creatures' side heads are beginning to emerge. This spawn model is three feet long and has an extremely nasty disposition. The mold for this three foot long spawn wouldn't fit into Dod's oven so Isofoam "cold foam" was used.



PHOTOS: JOHN DODS

Dods served as the Special Effects Director on *The Deadly Spawn*. He's seen here with the four different sized baby spawn sculptures that he created to mass produce the horrible creatures. Each of the sculptures represents a different stage of growth. The three smallest used oven-cured latex.

quence a construction had to be made out of a fleshy/jelly-like material that could be cut with a razor blade. After some unsuccessful experiments with alginate material I found a supplier of Plastisol—the same material used to make artificial bait and those wiggly spiders seen in novelty shops. Plastisol comes as a white liquid that turns clear when heated on a stove for a few minutes; pigments can be added at this stage to color the Plastisol as desired. I poured pigmented Plastisol into two greased plaster mold halves and quickly closed them together; more Plastisol was poured in through a hole in the mold's bottom half. After cooling (about one hour in

a freezer) the Plastisol had set and was removed from the mold. Permanent Magic Markers were the only form of colorant I have found that will adhere to Plastisol once it has cooled to a solid state, but these do work quite well.

Plastisol again proved invaluable when we needed a shot of a human head being eaten by baby spawns—chunks of flesh were to be pulled off the face by the greedy extraterrestrials. *The Deadly Spawn* makeup supervisor Arnold Garguilo prepared a mold from the face of the actress whose head was to appear to be consumed. I poured a one quarter inch thick layer of Plastisol into Arnold's mold to pro-

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Right: Many hundreds of monster teeth were formed of Sculpey and baked in an oven in order to harden them. The teeth ranged in size from 5 inches to as tiny as a pencil point. The hardened teeth were then pressed into the gums of the clay spawn skulls.

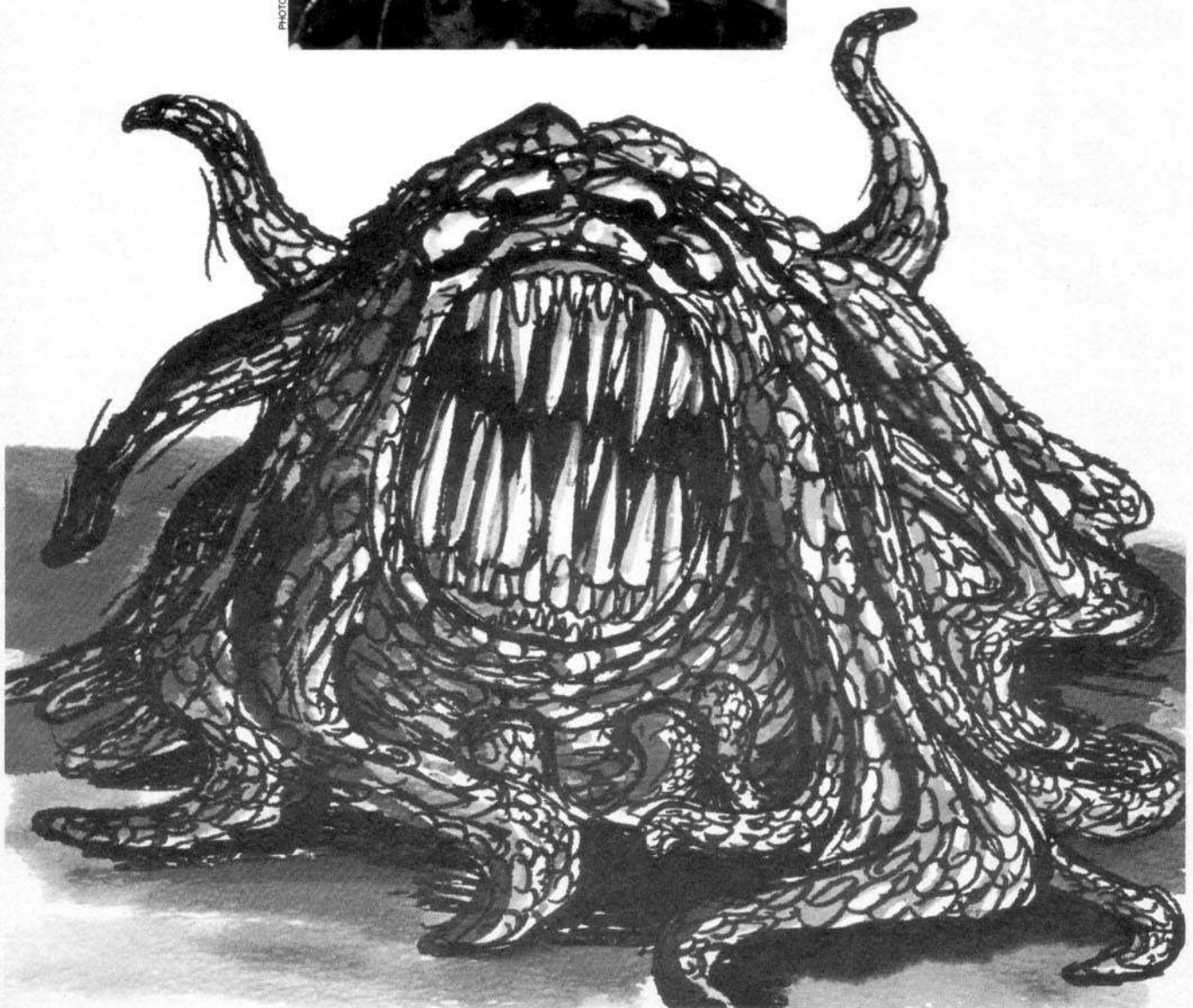
PHOTO: JOHN DOOS

duce a positive "face." This was superglued onto an appropriately gory plastic skull and a realistic glass eye was inserted. The face was made up with rubber mask and conventional type grease paints. (See "Secrets of Graphic Gore" in CINEMAGIC #17.)

SPAWN ANIMATION

From the beginning of the production the method for getting the baby spawns to *move* was undecided. Most of the effects shots required the spawns to remain in one spot—chewing on body parts usually; this action was accomplished through simple puppetry. But the problem of spawn *locomotion* remained unsolved for some time. Because of my previous experience with stop motion (the *Grog* series of film shorts) this animation technique seemed to be a real possibility—yet even-

Below: This drawing depicts one of the designs contemplated for *The Deadly Spawn*. This design was rejected in favor of the one apparent in the photos of the completed mother spawn. There were three designs from which the final design was chosen. The other rejected design employed the age-old "man in a suit" approach.



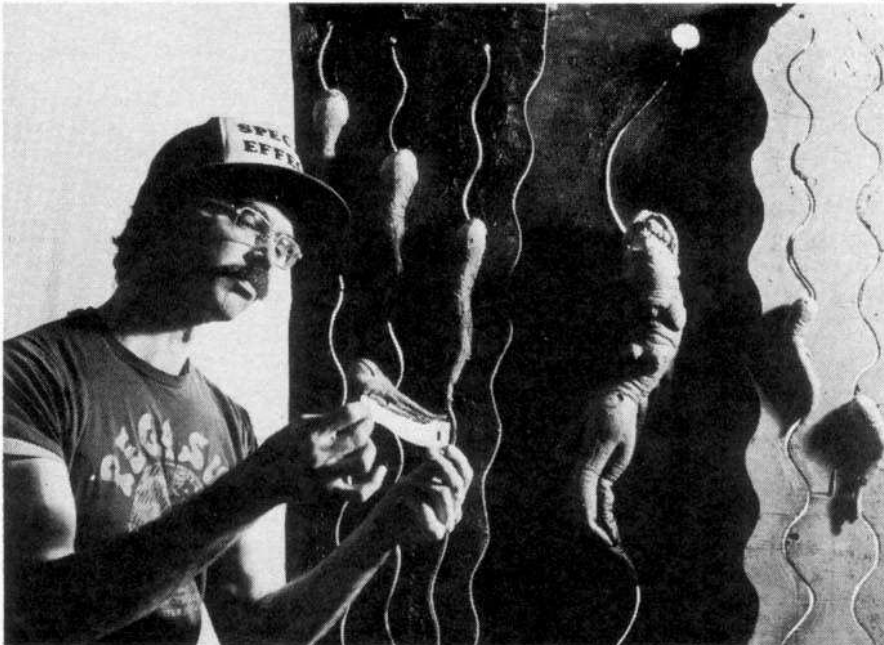
tually I decided against it. Unexpectedly, I found a better solution to the problem.

I constructed a plywood surface into which I cut a repeating "wiggle" pattern with a jigsaw. I slit open the underside of a small foam rubber spawn and sewed into it a flexible plastic insert; this protruded from the underside of the model and fit into the plywood track. I had intended to move the spawn bit by bit along the track and create the illusion of movement through the stop motion process. I soon realized, though, that this was not necessary. By lubricating the track with Vaseline and pulling the spawn with a nylon cord I had created the effect we needed. It looked real.

Hiding the track then became easy. In *The Deadly Spawn* there is water in the basement where the spawns are breeding; leakage from the thunderstorm raging outside the house covers the floor. I simply made the water (opaque with dirt and "blood") deep enough to submerge the numerous tracks and we had another set of successful constructions: mobile spawns.

Now that you have seen how I have applied some simple techniques to monster making and, in last issue's CINEMAGIC, basic gore, you should be able to develop some ideas and techniques for your own film's thrills and chills.

CM



This is how Dods solved the problem of spawn locomotion. A flexible plastic insert was sewn into each foam rubber spawn. The inserts fit into curving track patterns cut into plywood. The spawn move when pulled by a string along the curved track. This photo is by Ken Walker.

SUPPLY SOURCES

IASCO
5724 West 36th St.
Minneapolis, MN 55416
Plastisol, pigments, polyester resin products.

R & D Latex Corp.
5901 Telegraph Road
Los Angeles, CA 90002
Foam latex and liquid latex.

Westwood Latex
Westwood Ceramic Supply
14400 East Lomitas Avenue
City of Industry, CA 91744
Mold-making latex (ammonia based).

Lang Dental Manufacturing Co., Inc.
Chicago, IL 60610
Jet dental acrylic.

Sculpture House
38 East 30th Street
New York, NY 10016
Hydrocal, Ultracal and clay (very good quality).

WITCO Chemical
Isocyanate Products Division
900 Wilmington Road
Newcastle, DE 19720
Isofoam cold foam

Polyform Products Co.
9420 Byron Street
Schiller Park, IL 60176
Sculpey (Note: If you identify yourself as a sculptor you are eligible for a substantial discount.)

Alcone Company
Paramount Theatrical Supplies
575 Eighth Avenue

New York, NY 10018
Rubber mask grease paint, Kryolan cold foam.

If you live near a major city, many of the materials mentioned in this article are available locally. Check the yellow pages under such headings as dental supply, sculptor's equipment and supplies, etc.

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Anyone interested in letting us show their films (Super-8 mag or silent, Regular-8 silent, Super-8 stereo or 16mm optical sound), please call or write to us at the address below, so we can discuss the matter further. Please keep films down to 20 to 30 minute running time maximum. Thanks, and keep filming!

Jim Smagata

Technical Director, Auditorium
Grand Prairie Regional College
Grand Prairie, Alberta, Canada
T8V 4C4
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Fed-up in Freeport

... Putting it simply, I need help in finding some co-filmmakers. I don't need any rotoscope equipment, makeup supplies, or help making lasers, just *people*. I have been looking, writing and hoping too long. I'm sick and tired!

From a letter I wrote (that was published in CINAMAGIC), I got one response. And that guy never showed up when he said he would. I've been all around my area seeking a film job, apprentice, or work without pay. It's no good, man! What's going on? Is it me?

Meanwhile, I work making films with a friend (he's really not very interested in filmmaking), but I'm starving for co-filmmakers. I don't know what to do. Could someone out there scribble me a note, I need an inspiring word.

Ron James

108 Woodside Ave.
Freeport, NY 11520

... Cheer up, Ron, things will get better. Keep making films. You'll get there. Any readers who would like to join forces with Ron are asked to write to him at the above address.

Amateur Filmmaking Club

... I have been an amateur filmmaker for a few years now, and I realize that the biggest barrier for many amateur filmmakers to overcome is lack of motivation. Often, I will begin to make a potentially good film and not have the initiative to complete it. This is because I have virtually no one to share my interest or ability with. I know that I'm not the only amateur filmmaker with this problem.

Currently, I'm planning a feature length science fiction fantasy in Super-8. The film would be entirely too big to tackle alone. Therefore, I'm asking amateur filmmakers who are interested to join me in producing this challenging film. I know that there are many amateur filmmakers out there who have many talents and their own SPFX secrets. Here is a chance to put your abilities to use. The effects in this film will include everything from spaceships to stop-motion animation. Together, with all our diverse talents, we can produce a truly great film.

If you are interested, please write me at the address below. Tell me something about yourself, your specialties, and why you wish to join me. Please don't let the fact that I live in California discourage you if you don't live near me! I'm sure we can work something out.

Alex Vasquez
13862 Weidner St.
Pacoima, CA 91331

UFO's

... In Issue #13 there was an article about creating UFO "light ships." I have tried this method and it works great. However, in my opinion, it is impossible to make complex spaceships using this method. The alternative, make a model. Use plastic in areas that don't have much lighting. Use brass tubing for supports and "arms," (remember CE3K). Also, put lots of fiber optics and light bulbs on the model. You can make glowing panels from tissue paper with filter gels behind them and backlight them with small bulbs. I have used this technique in several films and it looks great.

James Anderson
3908 59th St. CT. N.W.
Gig Harbor, WA 98335

Bloodless in Toronto

... Looking back on my issues of CINEMAGIC, there is one item I

have yet to find. I'm planning to make a movie of post-holocaust society, where the survivors of the holocaust must battle and defeat an army of mutants. The film contains a lot of bloodshed, but I lack the blood.

In CINEMAGIC #2, an article appeared which had Dick Smith's formula for blood. The only thing holding me back from making my blood from this formula is that I don't know what Karo syrup is and I don't know where to buy it. Can you help?

Silvano Gemmiti
252 Gilbert Ave.
Toronto, Ontario, Canada M6E
4W7

... *Karo syrup is simply a syrup made from corn sugar. You should be able to buy it in your local grocery store. If not, you'll probably be able to find a suitable substitute or you can ask your grocer to order some for you.*

Italian Klingons

... I've started to make an 8mm film based on the *Star Trek* stories. I assembled the models of the Enterprise and Klingon starships from the AMT kits. I need some information in order to build a simple bridge set in a corner of a room (about three square meters) which could be similar to the Enterprise bridge and the Klingon Cruiser bridge.

Since the same actors will act as Enterprise personnel and as Klingon warriors, could you suggest an easy way to camouflage my actors as Klingons? I'd appreciate any help you can give me.

Sergio Squarotti
Corso Antony, 29
Borgata Paradiso
10097 Collegno (TO), Italy

... *Maybe some CINEMAGIC readers can write to our Italian friend and give him the answers he seeks.*



Rocket Prop

... Here's a photo of a background prop for the latest ARGH Production film, *Szwor*, a fast-paced laser

chase into the next century!

Gary Hall
404 Stanton Lane
Crete, IL 60417

Blood Bath Blues

... I have recently mailed several letters to filmmakers who disturb me by their descriptions of their films in the Producers' Bulletin Board section. There seems to be a trend appearing and frankly, I don't like it. This is the trend of gruesome horror films. In this letter I just would like to get my point across to those who consider making this type of film. These types of films are no good, and they're a waste of good film. Make a good, suspenseful horror film, don't just drip blood onto your lens. Suggest the terror, but don't show it. You'll probably end up with a better film. I wish people would strive to create suspense, not just horrible gore. I think that the people who make this type of gore film must not enjoy life. They must envy death. If you want to film people being blown to bits, go to a war zone where they do this sort of thing every day. There are plenty of wars going on in the world, so you can take your pick. Best of all (or worst), you won't need to spend any money on makeup. Have fun, and happy shooting.

Ben Jones
5617 Trooper
Las Vegas, NV 89120

... Gore films may not have redeeming social value and they may not be your thing, Ben, but it's a free country. Maybe you'd be interested in a subscription to FANGORIA!

Originality, Please!

... In the last three issues of CINEMAGIC, your series on the basics of scriptwriting was both excellent in its content and timely in its appearance. For the one obvious flaw in the many of your readers' productions is the script ideas of the films. Furthermore, I noted in the first article in the series on scriptwriting that Mr. Houston said, in effect, that you shouldn't worry about placing originality before logic. Although I agree, I hope that your readers do not interpret this to mean that in all cases, original ideas take secondary importance to the execution of plot elements. As it is, nearly every plot synopsis announced in the Producers' Bulletin Board section has major elements taken directly from *Star Wars*, *Star Trek*, *Scanners*, *Battlestar Galactica* or the plethora of "stalk and slash" films now being vomited out by the industry.

Either this, or the plots are so-called comedies, usually uninspired 'take-offs', using deliberately bad effects. The reason, I'm afraid, is that filmmakers who lack the patience and/or the skill to do something seriously, resort to finishing their projects in a shoddy (but easy) way.

In the 14 years in which I have been involved in filmmaking, I have seen hundreds of amateur films and also have read many amateur scripts. The greatest trouble with them has always been in their unoriginal and uninspired ideas. Therefore, when I read, "Commander Ken Starkiller travels to the ice planet Gorath and battles psychic killers from an underground empire of robots," I get a rather unpleasant feeling of Deja Vu. And when I'm told about how some group is making "Clash of the Piepans" which includes "fakey mattes and flying monsters with visible wires," I know it's a production I'll want to miss.

Serious young film artists, such as those covered in your Profile section, tend to do original, creative, serious work. A comedy, of course, can be considered serious work also, if its production attitude is serious. In CINEMAGIC #15, George Lucas says you can get into this business by making a really good film. Well, you all know that what makes a good film is not its special effects or its sets, but the ideas involved and how they're presented. Some good examples of what I mean are these "student" films: *Amblin'*, Steven Spielberg's first 35mm effort; *Equinox*; *Dark Star*; and George Lucas's *THX*, later made into *THX-1138*; and my favorite, the highly original, controversial *Eraserhead*, by David Lynch. Finally, I suggest you write down your dreams, your experiences and your imaginings, and when you organize them, you'll have plenty of script material.

Jeff Robins, President
Film Media Corporation
Enterprises
P.O. Box #43543
Tucson, AZ 85733

... Thanks for a great letter. You kids out there who are trying to get your own version of *Revenge of the Jedi* out before Lucas Film releases it next summer should take heed.

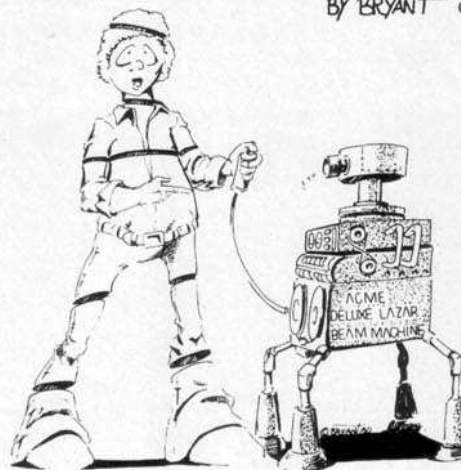
Alternative to "Tie-Downs"

... This letter is in response to Allen Sharp's problem (in CINEMAGIC #16) with "tie-downs" for use with stop-motion animation models on miniature sets. The problem he had dealt with "destroying" the sets with drilled holes.

I've had some luck using sheets of "cork." "Cork" tiles can be bought in most of the big name lumber stores, where many varieties of household needs for do-it-yourself carpenters are sold. This material can be bought rolled up in sheets or as 9'x9" tiles. It comes in a variety of thicknesses (the thicker the better). This "cork" material is very firm and can be used over and over if it is handled with care. You

SPECIAL DEFECTS DEPARTMENT

BY BRYANT ©1980



"I believe we can safely assume that laser technology may still be out of reach of the amateur filmmaker!"

Day-for-Night Woes

... A friend and I are trying to make a video show and we've been plagued with many production problems—most of which we've fortunately been able to solve. The one problem that we're still having trouble with is this: most of the movie takes place at night and many of the scenes are to be shot outside. Since the shooting site is a residential area it is impossible for us to use many bright lights. On the other hand, we have no way of shooting day-for-night that results in acceptable quality on video. All of the day-for-night tests that we shot failed to look like night. We have a limited budget and our deadline is looming on us. What do we do?

Bruce Ige
6532 Peggy Circle
Huntington Beach, CA 92647

... Have you tried using a neutral density filter over your lens?

Louisville Pen Pal

... I am presently attending the new Youth Performing Arts School in Louisville, Kentucky, majoring in technical theatre. I was the youngest—at age 12—ever to attend this special new school. I am very interested in corresponding with other young people who share my interest in filmmaking, makeup artistry and/or backstage theatre. Any readers who would like to correspond with me on these subjects are invited to write to me at the address below.

Mac Ennis
1370 South Brook St.
Louisville, KY 40208

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

can glue the material down flat on the animation table and then paint over it or cover it to disguise it.

The use of this "cork" material totally replaces the use of "tie-downs" and drilled holes in miniature sets. Instead of "tie-downs," the feet of the animation model are made in such a way (with tiny holes in metal feet) that *straight pins* can be pushed through them (from the top of the feet) and on down into the "cork." I prefer to use at least two straight pins per foot. The pins are pushed in at different angles (not straight down) to give the model more stability. Unless the pins are pushed in at an angle, they can easily be loosened or pulled out during animation and the model

could fall over.

The thicker the "cork," the further down the pins can be pushed and the more stable the model will be. A second or third layer of "cork" can be of great help to allow the pins to be pushed down further. If the pins are too long (allowing the heads to be seen by the camera), you can simply cut off the pointed ends to the desired length.

Certainly, "tie-downs" are more stable. Someone willing to experiment may find something better than using straight pins. The diagrams that accompany this letter should help you understand this technique.

Mike McLaughlin
Mutual, OK

CM

Shoes for Dinosaurs

Filmmaker/Writer Paul Mandel offers some advice about tie-downs for animation models — a problem that has plagued many of our readers.

By PAUL MANDELL



Paul Mandel animates puppets for a segment of the *Children's Television Workshop* entitled *A Summer Rain Dance*, which was aired on PBS (the public television network). The armatures are by Dave Allen and Tom St. Amand. Tiedown holes were drilled through the hard clay surface into board masonite

This commentary is for the benefit of the perplexed reader from Canada (Filmmakers' Forum, CINEMAGIC #16) and for anyone who shares a similar problem. Having worked with animated figures on both an amateur and professional level, perhaps I can offer some insight and suggestions on a subject that needn't seem so problematic.

The reader's question was this: How can you use efficient tie-downs for animation models without destroying the set with drilled holes?

The first impression one gets is that his problem is one of aesthetics and not mechanics. Obviously, the only practical way to keep animation models in place on a set is by the use of a tie-down system, which usually consists of threaded rods that screw into the feet from below, fastened to the stage by a wing-nut and a rubber washer. (For very heavy models like the snow walkers in *The Empire Strikes Back*, animators sometimes use ball-lock pins or "pop pins," which anchor the model to the stage by forcing two little retractable balls of metal into the feet with the pin's plunger.) Tie-down holes should therefore be

looked upon as a functional part of the set, not as an unattractive series of potholes. When arranged properly for calculated movements and drilled into a foundation that can withstand constant withdrawal and insertion, the holes should be regarded with pride and not pain.

Any talk of "destroying" the set implies that you are drilling holes into material that cracks and falls apart, making it impossible to animate successfully. A plaster of Paris set without a solid sub-level, for instance, will hardly sustain frame by frame positions rigidly. A foundation of wood or thick masonite is needed to secure the bolt from the underside of the stage. *Papier mache* or plaster surfaces can then be applied with varying degrees of success. Most professional animation stages, in fact, are made of wood, plexiglass, or predrilled metal. (The tie-down stages in *King Kong* and *Mighty Joe Young*, for the most part, were made of pine board nailed onto saw horses. And interestingly, the holes in the feet of some of the Kong puppets were almost as big as 25 pieces because of their unusual size.)

What appears to be your problem, aside

from the possibility of using inadequate stage materials, is a difficulty in covering up the holes during animation—making the surface appear "jumpless" on the screen. When plaster cracks, surface readjustments are more complicated. Thick *papier mache* might make it easier. It all depends on the weight of the model and what actions you intend it to perform.

Hiding tie-down holes is usually more perplexing to the uninitiated than to those with even a minimal amount of experience in animating armatured models. Audiences wonder: If those puppets are fixed to a stage, why can't I see the holes through which they are anchored?

Models animated on a grassy surface hardly have a cover-up problem, obviously, as the holes are obscured to begin with. Flat surfaces are another matter but need not be problematic. Different shades of plastilene clay enhanced by paint can successfully plug and blend a tie-down hole. The success of the process depends entirely on the care and patience one exercises between frames. Simple poster paints blended and test-dried to different hues can work wonders in masking plugs

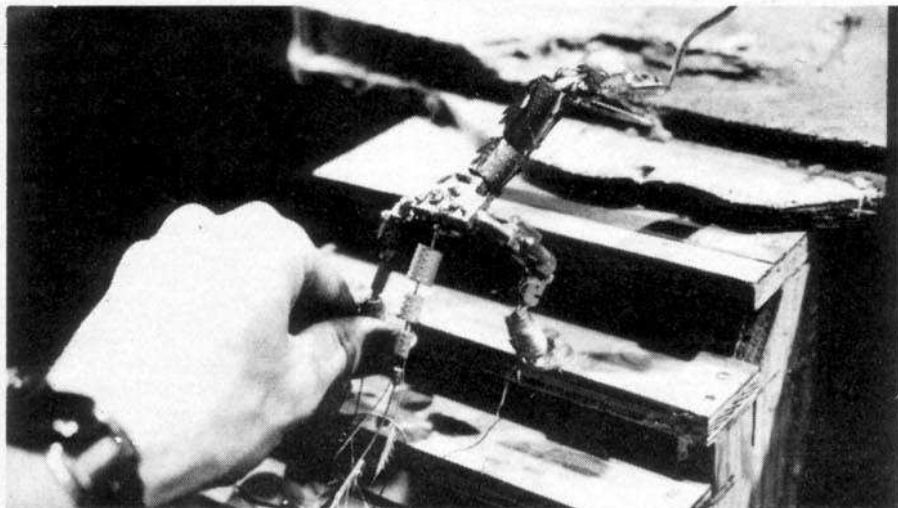
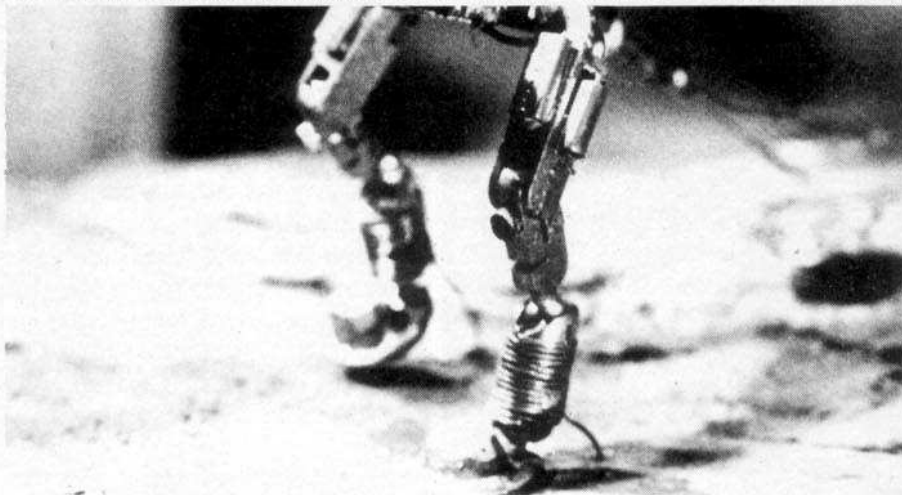
on complementary surfaces.

When I was co-animating stop-motion vignettes for the *Children's Television Workshop* aired on PBS, our puppets contained precision armatures expertly tooled by Dave Allen and Tom St. Amand, by special arrangement with Dave. Since the armatures averaged only seven inches high, we were able to use very small tie-

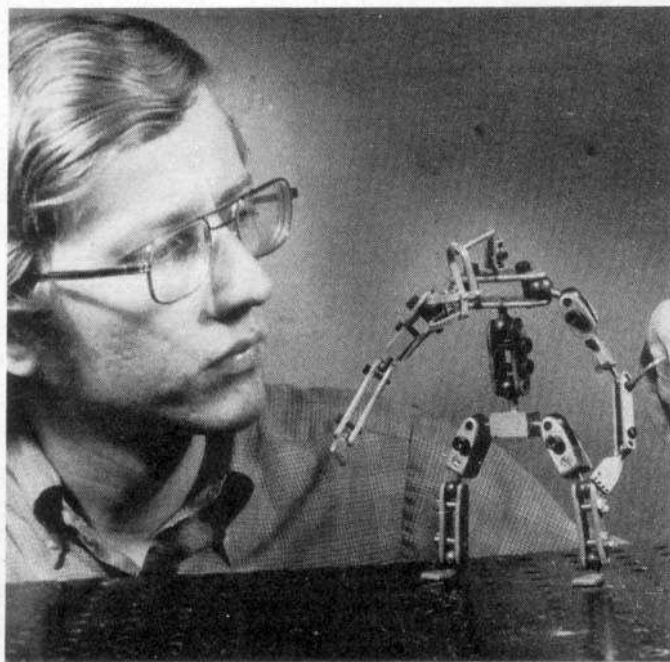
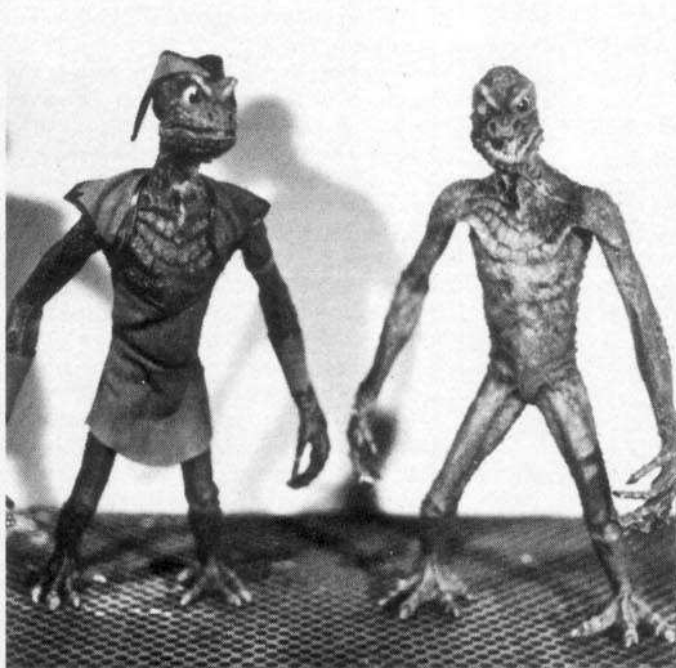
down holes. For the segment entitled "A Summer Rain Dance" the surface of our stage was supposed to be parched mud on a prairie, which was simulated by covering a sturdy wooden framework with a thick piece of masonite, dressed by a layer of red pottery clay. Since the surface was stippled with cracks anyway, hold coverage was facilitated simply by filling them with

terra cotta-colored plastilena. Later in the segment, we had a rainstorm which was accomplished by double-exposing a pre-filmed rain element over our set, which was actually puddled with water. Hole coverage was even less of a problem in this instance, as the clay mud actually filled in each hole as tie-downs were removed from below, much to our surprise. (Had

Right: An armature for a dinosaur model that was actually used without any latex "skin" in *The Land of the Lost*, by Gene Warren Studios. This is one of the few times that an armature was ever used as a character without being covered over. Note the coil of thin wire wrapped around the armature's legs that is used as a tie-down. **Below:** The uncovered armature is animated to walk up a flight of steps in *The Land of the Lost*. Note the trailing tie-down wires and the animation gauge placed at the armature's head.



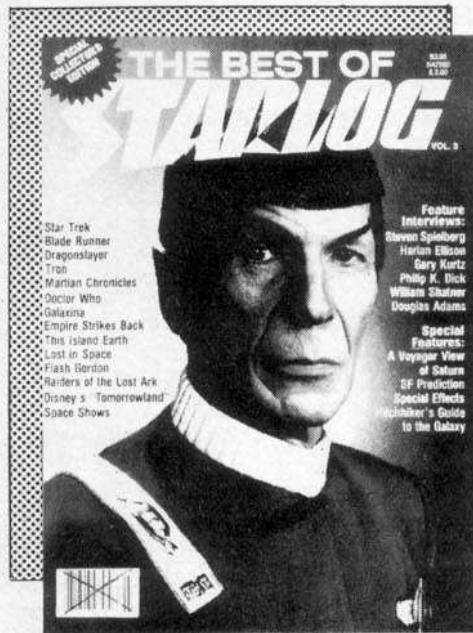
Bottom left: Two lizard men intended for *The Primevals* strike a humorous pose on Dave Allen's animation stage. The stage was custom drilled by Allen at Cascade Pix. **Bottom Right:** Ernie Farino with the armature he built for Craig Reardon's *By the Beautiful Sea*. Farino used an Allen wrench to adjust the tension on one of the armature's joints. This armature uses wing nut tie-downs.



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the stage not had a sturdy foundation which the wing-nuts could securely grab, animation on this unstable surface naturally would have been a disaster.)

For the segment "Rachel At The Beach," the surface was a bit trickier. Long sheets of fine-grain sandpaper covering the stage board filled the bill. Tie-down holes were drilled into the masonite *only*, conforming to the walking pattern of the puppet. Only when the figure's foot descended on the predrilled hole was the paper punctured with a nail, being careful not to fragment the hole. Masking the hole afterward was simple: the shreds surrounding the puncture were carefully pushed back into place, and a little bit of touch-up paint made it invisible to the camera. And even if they did show, it would seem natural for a little girl to leave tiny footprints in the sand. I cite these two segments only to illustrate how a story situation can accommodate tie-down problems.

Wood-pattern contact paper is another material to consider. One of my first stop-motion experiments had the bare armature running around a desk top, hiding intermittently behind a typewriter and other objects. Once the desk top was drilled to accommodate tie-downs, I covered the "stage" with walnut contact paper without removing the adhesive protector, making small ink marks on the underside of the paper through the holes. Next, I drew a diagram of the hole pattern in a notebook, giving a number to each hole. After that, I used a hole punch to perforate the ink marks and numbered pieces. A bit of touch-up paint applied with an extremely fine brush blended any punch circles. During animation it was no sweat to remove the little circles during tie-down insertion and put them back into place. The wood grain pattern was easily rematched this way.

Ironically, the "Dynamation" film was less of a hole problem than regular tabletop animation, due to the fact that split-screen matte work can hide the tie-down path along any shape in the frame, along any curve where the feet touch the "ground" on the process screen. However, beginners can learn something practical from it. For shots of the puppet walking in a specific plane, a glass painting of foreground terrain aligned with the tie-down path can easily mask the holes. Or the foreground could be sloped upward towards the feet, achieving the same effect.

One final method of tabletop anchoring, though rarely used, eliminates tie-downs completely. A layer of metal underneath the stage surface can be wired with a powerful transformer, turning it into an electromagnetic field which the metal feet of the puppet can clomp down on. The 1953 Michael Myerberg production of *Hansel and Gretel* used this system, which required the current to be turned on and off between movements. The system was not without its hazards; one technician unwittingly hit what he thought was a light switch at the end of a day's work—a switch

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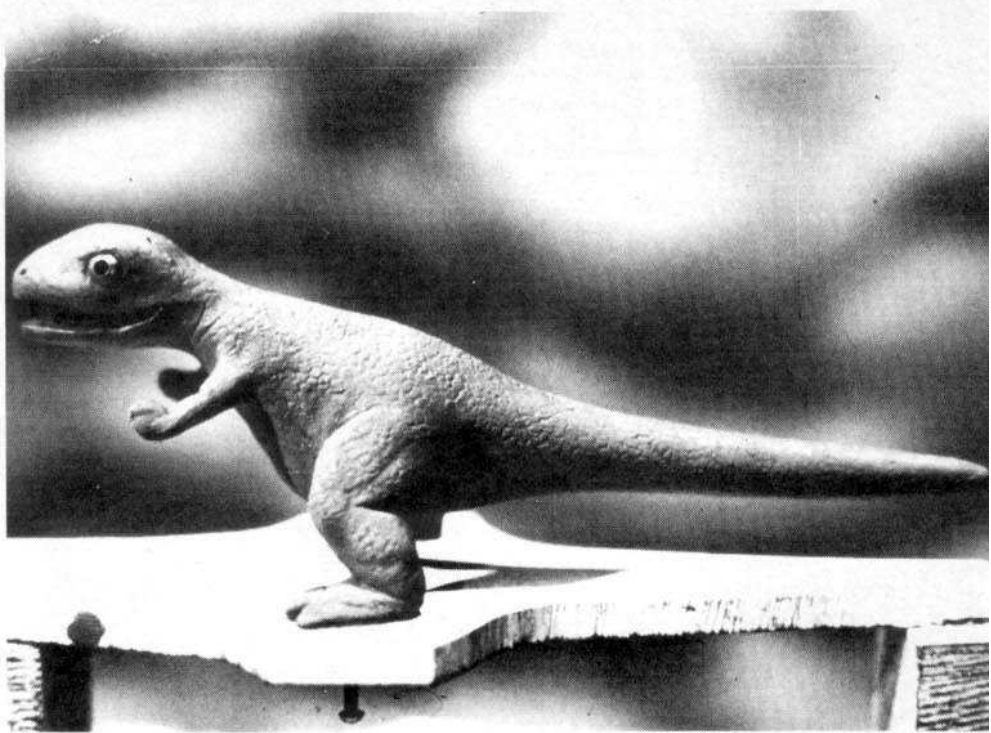
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that controlled the circuit to the stage. Unfortunately, the crew broke during the middle of a shot and—you guessed it—all the puppets fell down, requiring the shot to be done over from scratch!

A similar method would be to use strong block magnets under a metal stage. But any magnetic system is not as reliable as the good old tie-down—once the magnetism is removed, there is *no* support during puppet manipulation, which could really get hairy.

The best way to overcome your frustration with tie-down holes is to experiment with different stage and “plug” materials. See what works best for you. Learn to mix paints to blend clay. Watch the *Davey and Goliath* episodes and the Rankin-Bass productions for real ingenuity—some of that work is marvelous regarding tie-down situations. And next time you see the opening of the *Here's Lucy* show, watch the wonderful animation and tie-down work on the Lucille Ball puppet, with her high heels and pivotal movements. But don't ask me how the puppet was anchored to the stage—you'll have to go to Jim Danforth for that one.

In any case, don't let the problem tie you down. **CM**



A stop-motion dinosaur model sits on a retaining stand in Gene Warren Studios. Note the screw "tie-down" This model is covered with a latex skin, unlike some of the other models used in *Land of the Lost*.

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The Butcher. Documentary/ horror. The first part of the film shows how a butcher kills hogs in order to sell roast pork. The second part shows a group of teenagers on an ecology study on the coast of Puerto Rico, then the horror starts. Who will survive the mass murders? Producers: Cesar Diaz and Juan Nieves. Director/Writer: Cesar Diaz.



Nieves, Jorge Rodriguez, Carlos Lopez and Jose Smith. Most horror scenes are suggested rather than shown. FX include: gore effects and special makeup effects. Super-8, color, silent. Running time: not established. (Omega Films, c/o Cesar Diaz, 3rd St. C-7, Urb San Alfonso, Caguas, Puerto Rico 00625.)

The Game. An ordinary man walks into his home and finds a gunman waiting for him. Trapped in his own home, he is pursued by the gunman and has to find a way to kill him. But the gunman keeps reappearing, even after John kills him. What is the secret of John Slacer and does he win the game against the gunman? Producer: Full Moon Films.

Director/Writer/Makeup FX: Daniel Frye. Assistant Director: Kenneth Frye. Cast: Jody Wood and Buddy Morgan. FX include: smoke effects, various bullet hits including one to the forehead, throat slashing, letter opener stabbing to the cheek, stabbing, squibs and various other makeup effects. Super-8, color, sound with music soundtrack. Shooting scheduled for late July. Running time: 30 minutes. (Full Moon Films, c/o Daniel Frye, 60 Westervelt Ave., Staten Island, NY 10301.)

The Big Hurt. The final film in a series of original episodes concerning two mis-matched detectives and their search for an international fugitive. This assignment takes them on a free-for-all chase through the countrysides of the United States, France, England and the ozones. Producer: Kiser-Welch Film Productions. Director: Gary Kiser. Writer: Stefan Welch. Cast: Kristine Kiel, Mark Williams, Peter Stearns, Kristy Miller, Gary Kiser and Stefan Welch. FX include: character generated titles, matte shots, glass paintings, pyrotechnics, stop-motion animation, miniature spaceships with fiber optics. Super-8, color, sound with a stereo musical soundtrack. Running time: 70 minutes. (Kiser-Welch Film Productions, P.O. Box 441 Cuyohoga Falls, OH 44222.)



The Eviction. Action-horror. Homesteaders evicted from their land turn up dead after refusing to leave. This is the story of three brothers who decide to stay and fight. The Evictor is a man who takes joy in frightening and killing in his own way. He's a man of a thousand disguises, from a bigfoot and a spectre to a reptilian creature. Producer/ Director/ Writer/Camera/ Pyrotechnics: Brandon Reynolds. Assistant Cameraman: John Jardine. Photographers: Brandon Reynolds, John Jardine, Wayne Tullis and Tim Breiling. Cast: Brandon Reynolds, John Jardine, Wayne Tullis and Tim Breiling. FX include: dry chemical smoke, slow motion, electronic detonations, explosions and blood effects. Super-8, color, silent. Running time: not established. (Brandon Reynolds 38771 Bell St., Apt. #29, Fremont, CA 94536.)

Kung Fu Coeds vs. The Zombies.

Spoof. Satirizes horror, sexploitation and martial arts movies. One day at Any College U.S.A., the cafeteria food goes bad under strange circumstances. Shortly after consuming the contaminated food, all the males on campus turn into lust-crazed, psychopathic killer zombies who grab any girl they can get their hands on. After the death toll rises (and local authorities and the National Guard fail to stop the walking dead) the Kung Fu Coeds go into action. These five red-blooded, all-American girls trained in the martial arts battle evil wherever it rears its ugly head. The climax comes in an all-out battle between the Kung Fu Coeds and the Zombies on the college football field.



Producers/ Directors/ Writers/ Camera: Erik Magnus and Carey Burt. FX include: severed heads and hands and lots of that red stuff. Super-8, color. Running time: 15 to 20 minutes. (Schizophrenic Films, c/o Erik Magnus, RFD #1, Barnet, VT 05821.)

Strange. Tale of alien creatures invading a city neighborhood. The aliens take control over everyone who wanders into the neighborhood. The heroes have to stop the aliens before they become the next victims. Producer/Director/Writer: Mark Borchardt. Cast: Mark Borchardt, Mark Davis, Ken Keen. FX include: makeup effects. Super-8, color, sound. (Equinox Productions, c/o Mark Borchardt, 5747 N. 82nd Ct., Milwaukee, WI 53218.)

Missionaries to the Stars. Three ten-minute episodes make up this trilogy film, geared for children. Produced for Sunday school use, it teaches children self-worth and Christianity. All the characters are puppets. Producer/Director/Writer: John Martin. Original music by Pamela Vail. FX include: spaceships, space battles and outer space effects. Super-8, color, sound. (Exodus Film Productions, c/o John Martin, 1920 West River Rd., Elyria, OH 44035.)



Flights of Fantasy. Two young boys build a spaceship framework from giant tinker toys. Their imaginations turn the framework into a spaceship, and they blast-off to adventure. Based on an original idea by Adam Moes. In pre-production. Producers: E.J. LaFrance and Adam Moes. Director/FX Supervisor: Edward J. LaFrance. FX: E.J. LaFrance and Adam Moes. FX include: miniatures, computer animation, pyrotechnics, multiple exposures and mattes. Super-8, color, sound. Running time: Not established. (Edward J. LaFrance, 2206 Santa Fe Dr., Santa Rosa, CA 95405.)

Possessions. The story of a boy and his horse. Not too original, but it was a hell of a lot of fun to make. Surprise ending. Producer/Director: Jim Fortner. Writers: Jim Fortner and Dan Wilbers. FX include: stop-motion animation and makeup effects. (Jim Fortner, 1520 Lindgate Dr., Kirkwood, MO 63122.)

The October Harvest. Three horrible tales of the macabre concerning graveyards, All-Hollow's Eve, the walking dead and—you guessed it—the Reaper himself! shock endings! Producer/Director: John Kutchmarek. Cast: Mark Kutchmarek, Malena Kutchmarek, John Kutchmarek, the walking dead and the Reaper. FX include: graphic blood makeup, filming and models. Super-8, color, sound on cassette. Soundtrack includes "Don't Fear the Reaper" by Blue Oyster Cult. Running time: 10 minutes. (Dark Omega Communications, c/o John Kutchmarek, Box 131, Rapid River, MI 49878.)

Journey Through Bardo. The film follows the death, after life and subsequent reincarnation of a young woman who dies of leukemia. "Bardo", which comes from the "Tibetan Book of the Dead" is the place which, according to Tibetan beliefs, the soul travels through between this life and the next. The Bardo sequence of the film incorporates many innovative special effects techniques. Producer: Magic Lantern Productions. Director/Writer: John Campbell. Cast: Donna O'Hara, Kevin O'Hara, Frank Mount and Naomi Mount. (Magic Lantern Productions, c/o John Campbell, 2124 Schultz Rd., Lansdale, PA 19446.)

The Cry of Cthulon. Sequel to *The Starfire Connection*. Contains all of the elements of a great motion picture: Drama, suspense, special effects, sex, violence, intrigue and galaxy-spanning power. Apollo Steele, Athena Kenobi and Logan Argos leave the paradise planet of Eden 2 and venture to Dagobah. There, they must learn the ways of the Force in a dying age of warriors to combat the forces of Cthulon! Producer: BHT Productions. Director: Brian Terrel. FX include: stop-motion animation, superimpositions, blasters, spaceship models, explosions, alien makeup, blood, gore effects, miniatures and matte paintings. Super-8, color, sound. Running time: Not determined. (Brian Terrel, Rt. 4 Box 1403, Palatka, FL 32077.)

The Contract. A street-wise detective cracks down on recent bank robberings and finds out that there's a contract out on his life! Ordered by his own Boss! Producer: JS/JS Productions. Director: Jay Sadowski. Cameraperson: Jill Sadowski. Cast: Jay Sadowski, James Shoro, Jeff Sadowski and Jan Sadowski. Super-8, color, dubbed sound. Running time: Approximately 10 minutes. (Jay Sadowski, 16 Wilbur Pl., Flo, MA 01060.)

Yes, I'm on the Narc Squad. Police spoof. Jason McKord, a tough cop, risks everything to rescue his girlfriend Angie from a crazed, inhuman mob leader—Dr. Pepper! In final stages of pre-production. Producer/Director/Writer/Cameraman: Mark Singleton. Cast: Greg Smith, Karen and Leigh Ann Balasco, Kent Stafford, Steven Tyler, David Yawn, David Howe and Brian Stafford. Super-8, color. Running time: approximately 20 minutes. (Mark Singleton, 5772 Williamsburg Dr., Norcross, GA 30093.)

The House that Dripped Blood. Horror. A group of youths out for a drive discover an old house. They go inside and the terror begins. Producer: Evanmoor Productions. Director/Writer/FX: Roger Schofield. FX include: a severed head, a severed arm, an axe visibly thrown into a character's back. Film in anamorphic scope. Super-8, color, silent. Running time: 10 minutes. (Roger Schofield, 13 Wellfield, Close Bury, Lancs, England. BL9 9PG.)

Point Blank. A violent thriller about a lad and his friend who accidentally witness a killing by a ruthless gang. They are spotted by the gang members, who chase after them and try to kill them. Producer: Evanmoor Productions. Director/Writer/FX: Roger Schofield and Ian Trafford. FX include: Bullet hits on actors, a crashing van, big fight scenes with loads of blood. Filmed in anamorphic scope. Regular-8, color, separate sound on tape. Running time: 20 minutes. (Roger Schofield, 13 Wellfield, Close Bury, Lancs, England BL9 9FG.)

Interrupted Journey. A serious film based on the *Star Wars* saga. The film follows the adventure of Boba Fett after he leaves Beshin with his frozen captive, Han Solo. Producer/Director: Weldon Thomson. Associate Producer/Writer: Ruel Torres Hernandez. Cast: Weldon Thomson, Ruel Torres Hernandez and Phillip Ermino. FX include: hyperspace jumps, explosions and laser blasts. Super-8, color, sound. Running time: 15 minutes. (Weldon Thomson, 2614 Gwynne Ave., National City, CA 92050.)

The Reaper. Terrifying story of three teenagers spursued by death himself. Producer: Nebulae Productions. Director/Writer/Editor: Chris Eilenstine. Story idea: Kenneth Paradise. Cast: Gayle Dalton, Kenneth Paradise, Ralph Aunkst, Mark Bero, Thomas Dalton, Michael Traub and Simon Hadley. Super-8, color, silent. Running time: 26 minutes. (Chris Eilenstine, RD #1 Box 1455, Seneca Falls, NY 13148.)



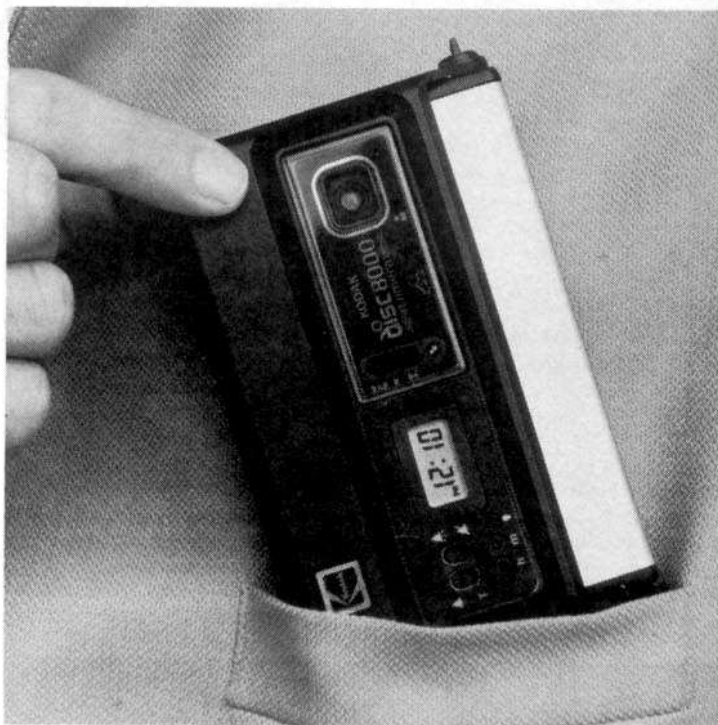
The Starfire Connection. Targeted for termination, Apollo Steele, Logan Argos, and Baltar Centuri (an alien with psychic powers), are chased across the galaxy by Commander Trybos—supreme leader of the Andromeda Empire—to Emuron Carvicia. There they team with an old Jedi Knight to devise a plan against Trybos, who has intentions of capturing Earth, stronghold of the Terran Federation. Little do they know a more awesome threat is at hand. Producer: BHT Productions. Director: Brian Terrell. FX include: stop-motion animation, superimpositions, blasters, spaceships, explosions, alien makeup, miniatures and matte paintings. Super-8, color, sound. Running time: 75 minutes. (Brian Terrel, Rc 4 Box 1403, Palatka, FL 32077.)

CM

GRIP KIT

HOLOGRAPHIC RAINBOW FILM

Edmund Scientific recently announced that it now offers laser-etched rainbow films. These transparent films produce brilliant patterns of color when used with a light source. Rainbow holographic films are ideal for use in special effects photography. Each 9 x 9 inch film is actually a precisely etched diffraction grating made with the use of a laser. Laser etching produces a film offering more brilliant colors than conventional diffraction gratings. Rainbow films can be applied flat or rolled for use in cylinders. Rainbow films can be purchased by mail from Edmund Scientific, 7082 Edscorp Bldg., Barrington, NJ 08007, in the following patterns: Colorburst, #61,288; Sequin, #61,289, Haloburst, #61,290 and Fireglass, #61,291, at \$9.95 each plus \$1.50 packing and guaranteed delivery. For complete information on Rainbow Holographic Films and other products for do-it-yourselfers, write for the free catalog at the address above. See the photo on the inside front cover.



NEW KODAK DISC SYSTEM

Though designed for amateur still photography, Eastman Kodak's new disc photography system is a boon for small unit filmmakers who have little time to bother with production stills on location or wherever. The new cameras slide easily into a shirt pocket and can be whipped out in a flash to record a camera set-up or actors in a scene. The fuss and bother of lugging 35mm still camera equipment along on location and assigning someone to take pictures and handle the equipment can be eliminated. Either the director or cameraman can slip the camera out of shirt pocket, snap the shutter and return to whatever they were doing. No time lost; no expensive extra equipment to worry about.

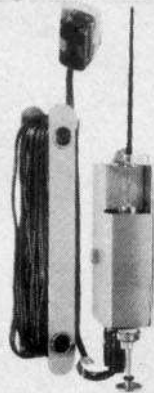
Kodak's new line of compact cameras is built around a unique rotating disc of film. At the touch of a button, the new Kodak disc cameras, by means of two integrated electronic circuits, will analyze the scene . . . set the proper exposure . . . activate the built-in flash if necessary . . . take the picture . . . advance the film to the next frame . . . and recharge the flash, all in a split second's time.

Three Kodak disc cameras, ranging in

list price from \$67.95 to \$124.95, for an outfit which includes two discs of film, are powered by new lithium cells that contain enough energy for over 2,000 exposures. The camera will take exposures practically as fast as the user can press the shutter release and with the top of the line model will operate in rapid sequence at 3 frames per second.

A key to the new system is the development of Kodacolor HR disc film for use in the extremely small (approximately 8 x 10mm) format the system requires to provide maximum user benefits. To permit the smaller size, the 200 ISO speed film has lower granularity with more sharpness than current 100 speed Kodacolor II film, regarded heretofore as the premier achievement in color negative film. Each disc of film contains 15 exposures and will list for \$3.19.

All cameras are equipped with four-element, 12.5mm, f/2.8 glass lenses, an automatic built-in electronic flash (that turns on automatically if the camera determines more light is necessary for proper exposure), a six-volt lithium power source, automatic film advance and automatic exposure control. In addition to receiving the same 3R-size prints customers now get from 110-size negatives, enlargements measuring 5 x 7 or 8 x 10-inches will be possible.

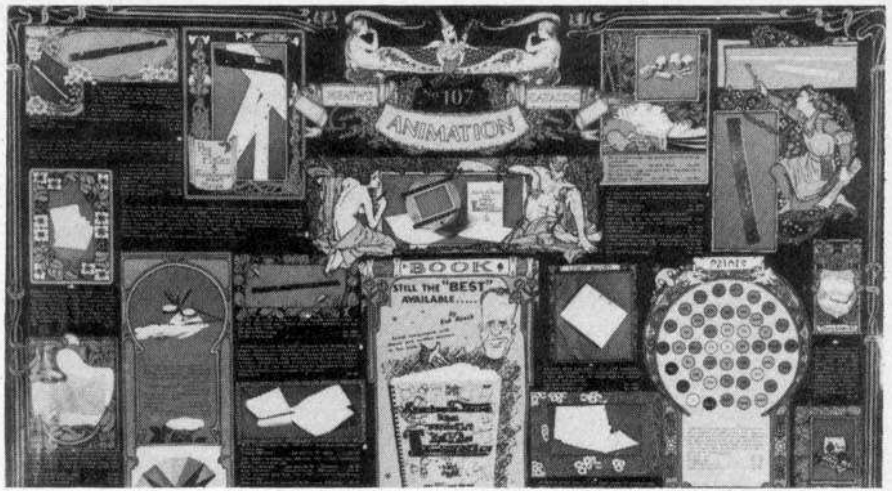


REMOTE RELEASES

The Pneumo Gitzo Air release with bulb has a length of 16 ft., with optional 16 ft. extension, for remote release up to a distance of 33 ft. The Electro Gitzo Electric Release has a length of 16 ft. with optional 33 ft. extensions, providing release up to distances of 150 ft. (with 4.5 Volt battery), or 600 ft (with 6 Volt battery). Both releases are very strong and come with 6-inch cloth cable release and pouch. The remote releases are covered by the full 5 year Gitzo Warranty Buyer Protection. Prices: Pneumo Gitzo: \$39.95; Electro Gitzo: \$99.95.

ANIMATION SUPPLIES

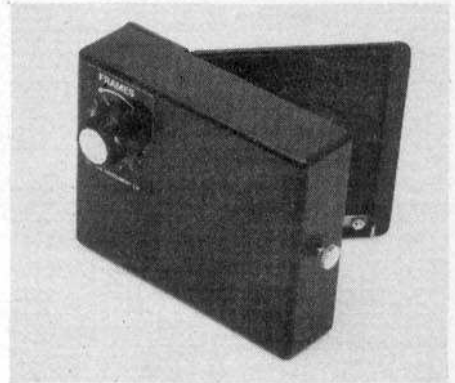
The new Heath #107 color catalog featuring a full line of cel animation supplies is now available. Heath supplies cels punched both for Oxberry and Acme registration systems as well as a broad range of brushes, paint, ink, pens, field guides and equipment to build your own animation table. Write Heath Productions, Inc., 1700 N. Westshore Blvd, Tampa, FL 33607.



CRAVEN BACKWINDER

A must for multiple pass photography in Super-8. Distributed in North America by Halmar Enterprises, the Craven Backwinder is designed for heavy duty use. In fact so rugged is the engineering that Craven offers a five year guarantee for parts and labor if the unit should fail to operate when used in accordance with the instruction leaflet. So confident is Halmar, the distributor, that they have extended the Craven guarantee for parts and labor for as long as you own it. The Craven Backwinder's sturdy metal construction

allows filmmakers to safely backwind up to 200 frames. The unit includes an indicator which allows you to easily calculate how many frames have been backwound. Backwinding opens up a whole range of FX for any Super-8 user, regardless of the camera you own. Halmar also supplies instructions for creating superimposed titles, dissolves, ghost effects, disappearing objects, multiple images with superimposed titles, scene wipes and superimposed "live" images, etc. All metal unit is supplied by Halmar, P.O. Box 474, Lewiston, NY 14092, or Halmar Enterprises, P.O. Box 793, Niagra Falls, Ontario, Canada L2E 6V6. **CM**



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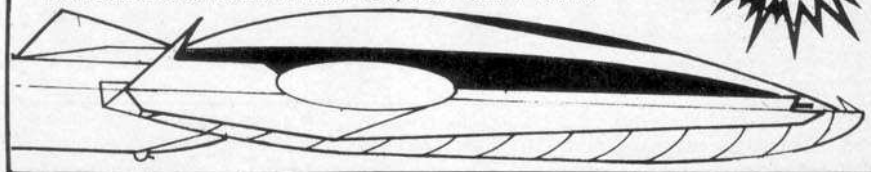
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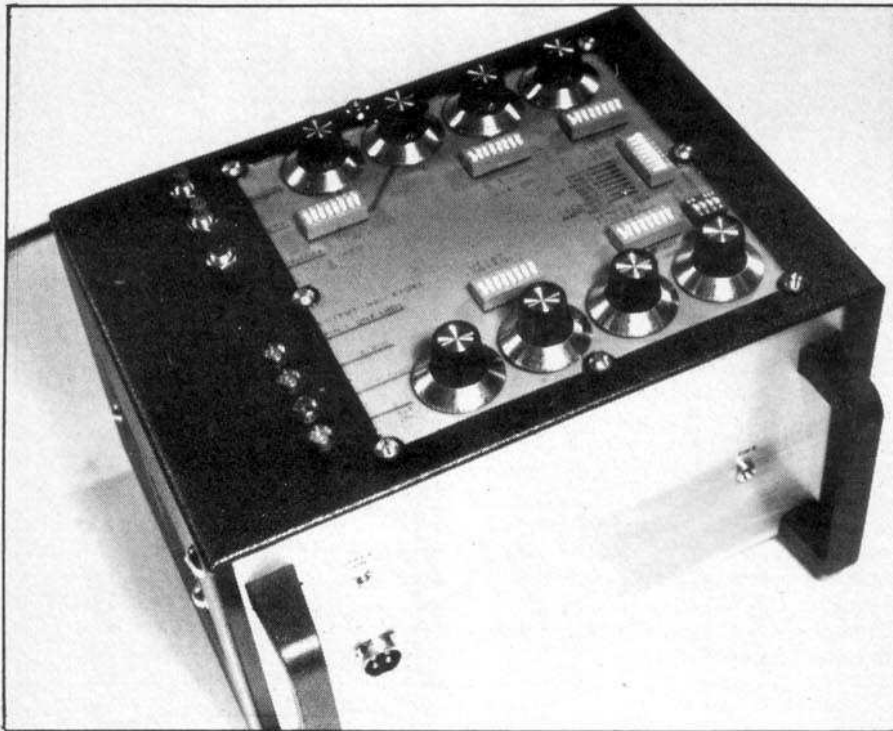
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“Why, it’s NEW and IMPROVED Box Full of Sound . . .”

By CHRIS E. STEVENS



The complete SN76488N complex sound generator is mounted in Radio Shack’s project box #270-270. The four LED circuit indicators are mounted in the lower left corner on the top of the project box.

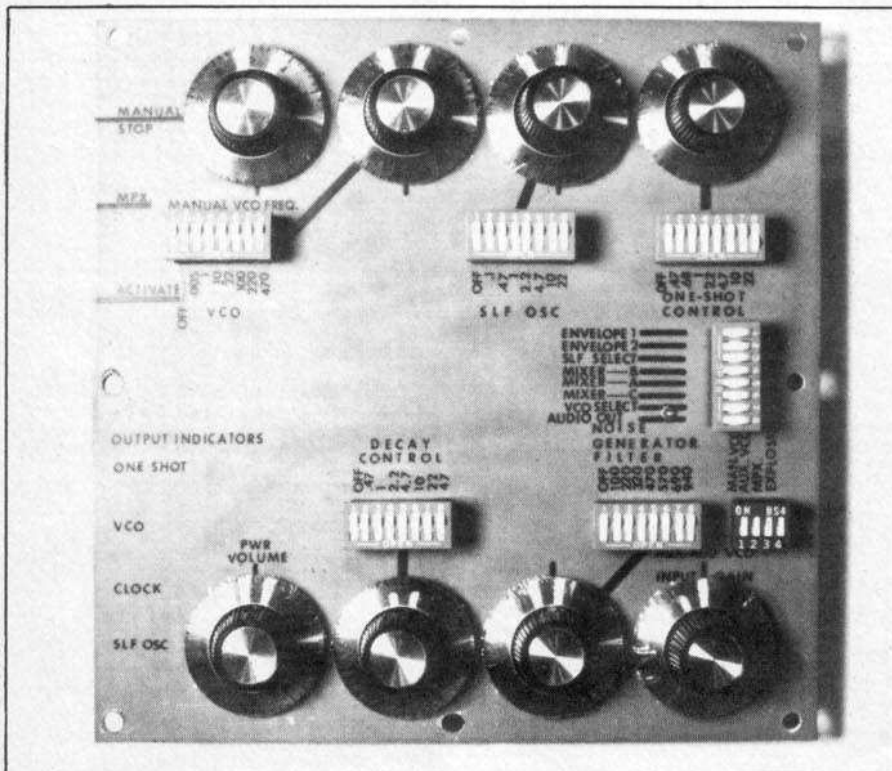
I guess you could call over 180 fewer connections an improvement, and certainly the way it looks . . . new. I must confess that I had taken on a little too much too soon, when I wrote the first “Box” article, and I found out that I had a lot to learn about magazine writing. In this case, it’s a “learn as you go” situation, and with every article I learn more. I especially want to mention here, that the letters I receive are *very helpful*. Thanks to you, I have a better understanding of the *type* of information you need, as well as several good ideas for future projects.

While I’m on the subject of letters, I’d like to let you know that the suggestions for projects are welcome because these are things that *you* need. As a filmmaker, I’m sure that you know more of what you need, and if I can help, let me know. Be sure to include any additional information you can, that is, what it is supposed to do, the type of application, etc. In other words, information on which to work. As I understand it, the basic philosophy here at CINEMAGIC is to help you find ways to make your films better.

The SN76488N complex sound generator IC combines both digital and analog circuitry enabling it to generate a wide variety of sounds. It’s the same type of IC that is used in the arcade games, as well as several other applications, and by adding additional circuitry, it can be manually programmed to work to a greater efficiency. That is what the “Box” is all about. With the purchase of the IC, you also receive a technical information sheet. And, on the inside, you’ll see a schematic for the “Demo/Test Box”, which shows the IC and associated circuitry. DO NOT let this be your guide. There are several errors in the schematic, and if you build it like it’s shown . . . it won’t work. The schematic in the magazine is correct, and it is expanded over the original. Also some of the layouts in the “Typical Applications” section won’t work either. Other than that, *most* of the other information is correct, and it’ll give you a better understanding of how this IC works.

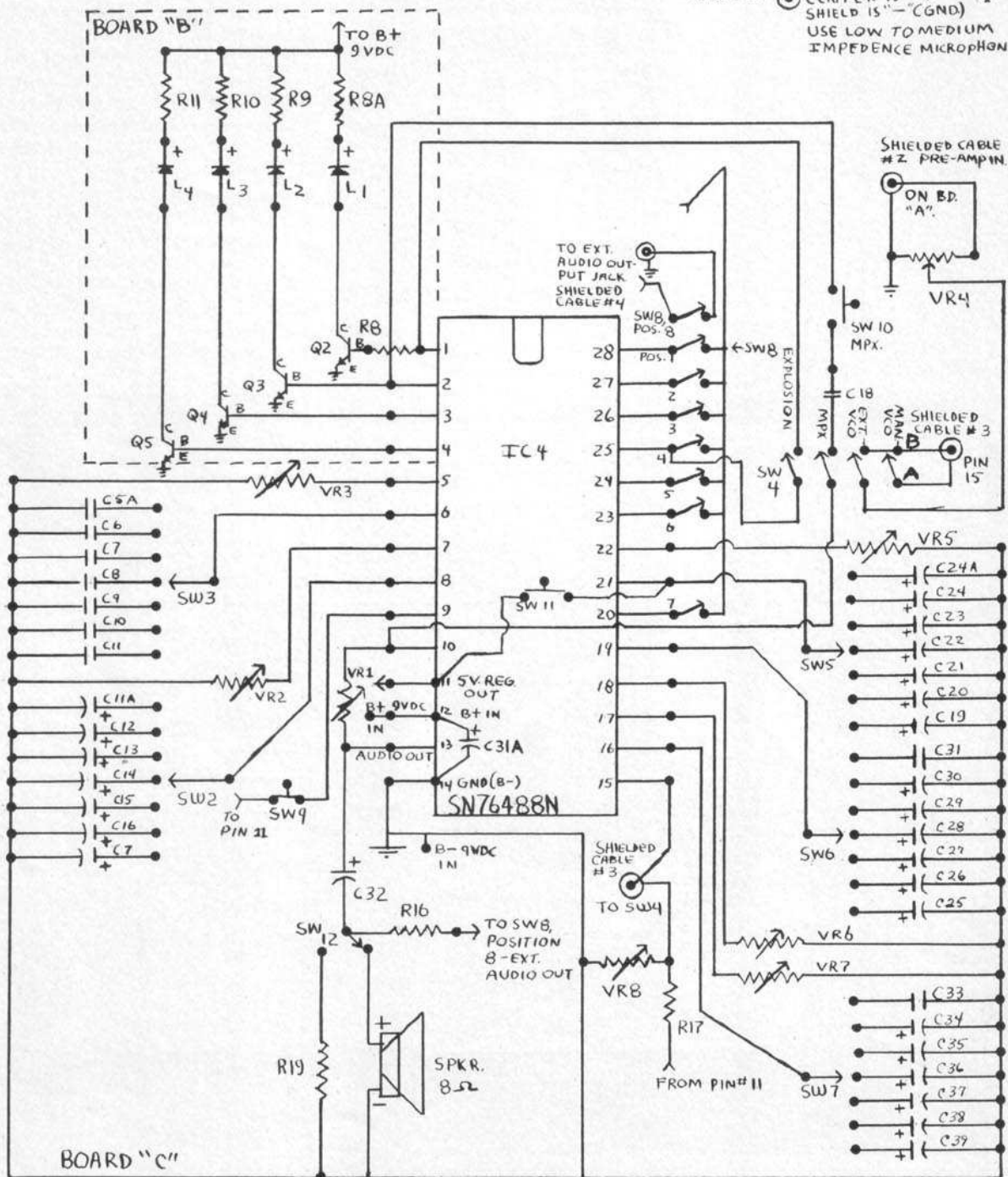
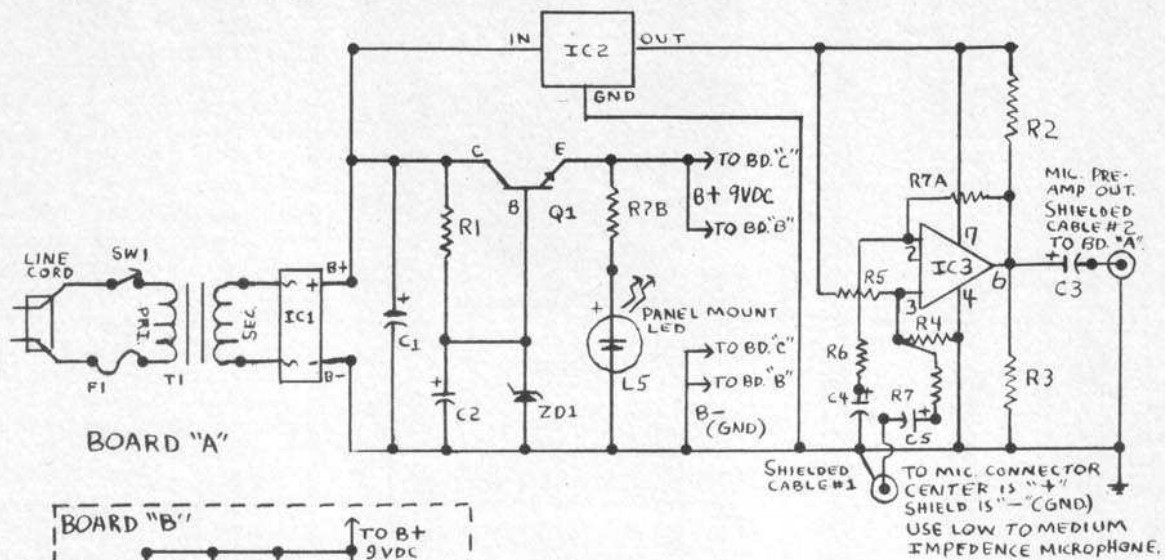
THE CIRCUIT BOARDS

This project is broken down to three basic circuit boards; Board “A” is the power supply board, and the microphone pre-amplifier. “B” is the indicator output board, and “C” is the main board, with the sound generator circuitry. The only holes you have to drill, are the ones with the white dots in the center. All of the others are solder pads. On board “A,” drill all; “B”



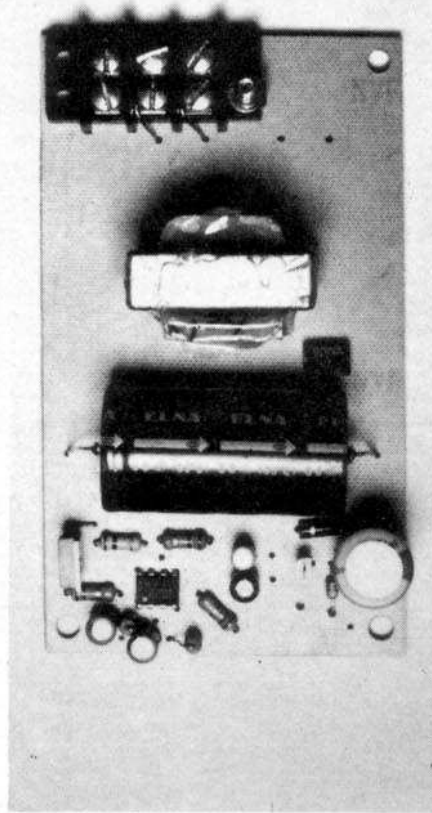
The control array is handily situated on the top of the project box. The knobs are control pots. The rectangular arrays with the white bars are the DIP switches which control the circuit functions.

PHOTOS: CHRIS STEVENS





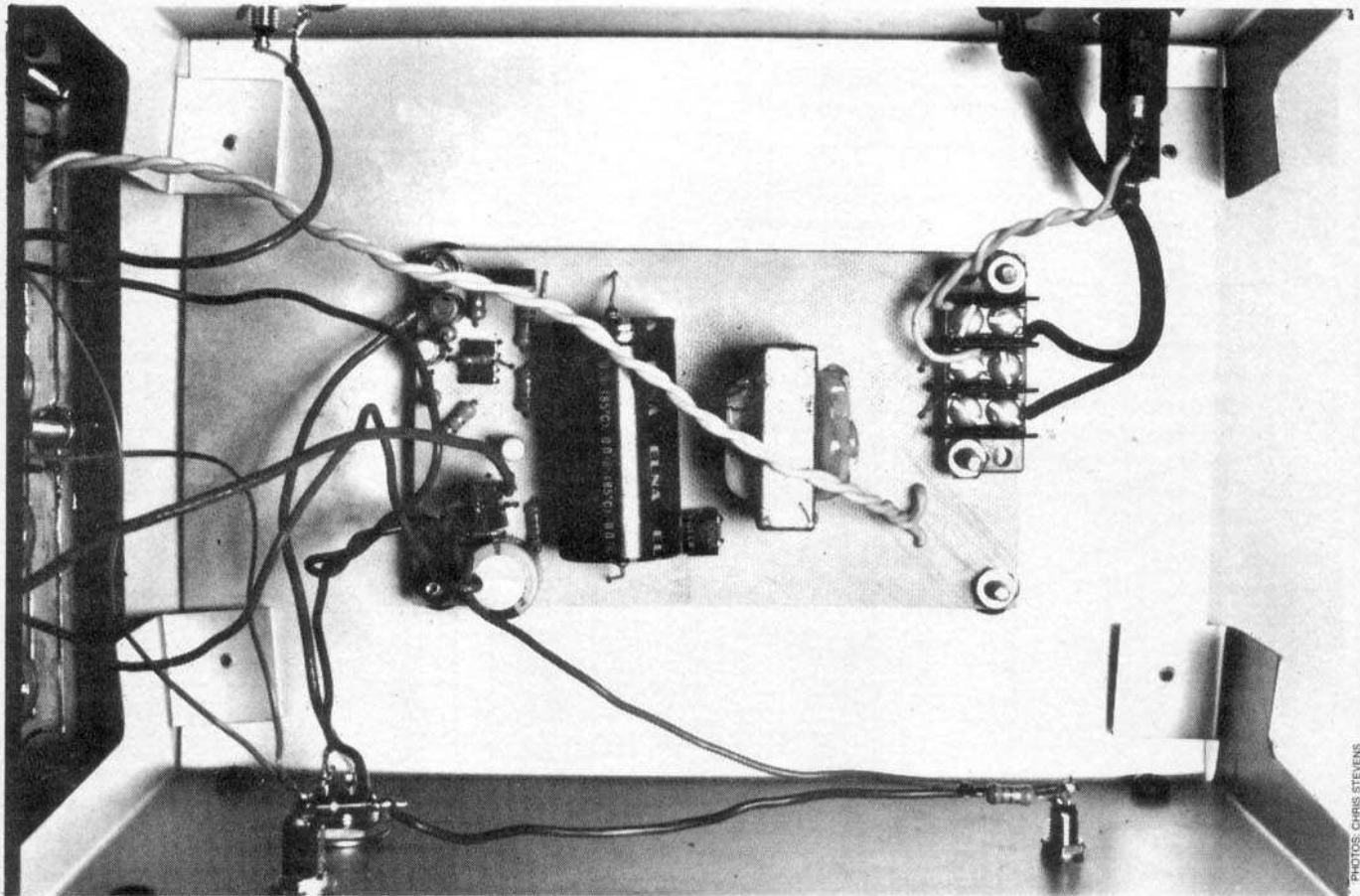
PC Board "B" is the indicator output board. The "B" board drives the LED's so you can monitor the functions on the sound chip.



The "A" board is the power supply board, and the microphone pre-amplifier. The pre-amplifier function modulates the VCO at pin 15 of IC-4.

drill ONLY the ones for the LED's and on "C," just the mounting holes, the shaft holes for the potentiometers and then for the seven DIP switches. I'm finding that I like using the double sided PC board for maximum versatility. Ever since I caught on to the idea that I can use press-apply lettering from a local office supply, on one side and then put the circuit on the other side, you can expect more of this. The versatility really enhances a project. On this board, I left the lettering in place after etching, and sprayed the front with a clear colored lacquer and then with a few layers of clear. Even if the lettering should come off, the covered copper will still be there, leaving you with satisfactory results.

In the photographs, you'll notice differences between the project boards and what's pictured, and diagrammed. The reason for this, is that this is the prototype project, and subject to change (as all are) after de-bugging. No matter what though, every project ends up snowballing into a monster. You know, "If I add a switch here . . . and a resistor (?) here . . . maybe . . .", and so it goes. In any case, if you follow the layout and use the schematics, you'll have a working unit the first time. If you find yourself getting tired, take a breather and come back later. And after you've finished putting the layout on the PC board, put it up for the night, and check it for accuracy the next day after you've had some rest and diversion. If all checks out well . . . etch away.



The "A" board is shown here mounted to the project box with all wires attached and running to their various positions. The heavy black wire coming down from the upper right is the AC power cord. The power supply provides a 9-volt output for the sound IC and for the output indicators.

PHOTOS: CHRIS STEVENS

HOW IT WORKS

Now, let's take this project board by board, and I'll give a brief summary on each. Starting with board "A." There are two separate functions for this board. One is that of the power supply, and the other is for a microphone pre-amplifier which is used to modulate the VCO (Voltage Controlled Oscillator) at pin 15 of IC-4. Now since you know as much as I do of the full potential of this IC at the present, please understand that *experimentation* is the key. A "sound log" of your experiments would be helpful. The pre-amp consists of the 741 op-amp (TLO-81 op-amp is good, too) with slightly over 2.2 times gain which is fixed, and feeds the VCO when it's switched in, using the "Ext. Aud. VCO/In-put Gain control (VR-4) as a frequency limit set. More on this later. IC-2 is the regulator IC for the op-amp.

The power supply provides a 9-volt output for the sound IC and for the output indicators. It's a zener diode regulated supply, supplying ample current for the project, and keeps the voltage at an acceptable level, while limiting the current.

The output indicator board, "B," is set up to drive LED's so that you can monitor the functions of the sound chip. Pin #1 is the one-shot output, and is also used for the explosion effect on switch 4. Pin #2 is the VCO output. Pin #3, the noise clock and pin #4 is the SLF output. You'll get the most action out of #1 and #4. #3 stays on continually and #2 will vary somewhat. If you choose, eliminate board "B" and use these as external outputs. See tech sheet for more info.

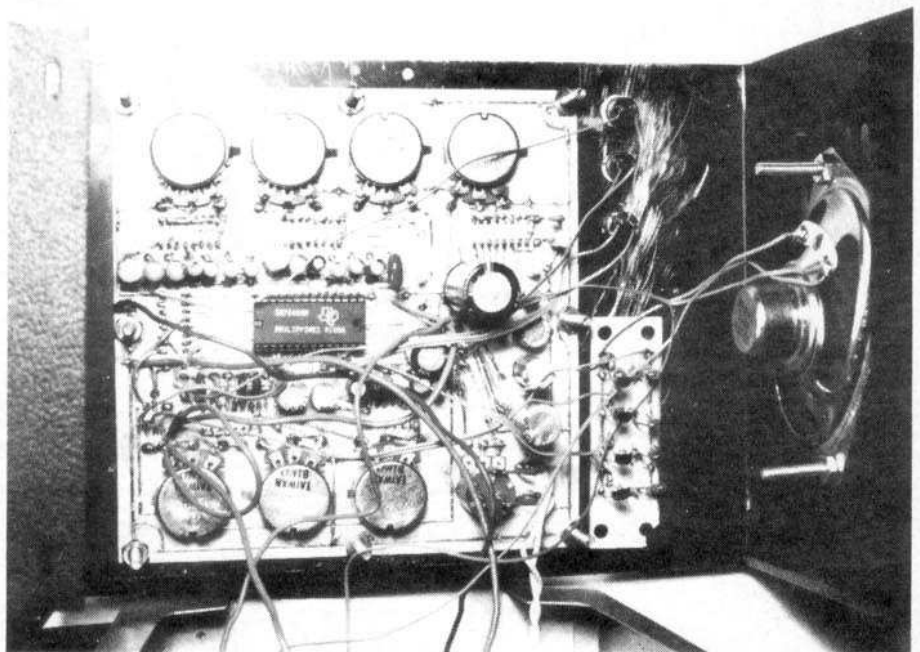
On board "C," the main board, here's where some modifications take place. Pin #1 drives the output indicator, and also the explosion effect on switch 4. It has to be used in conjunction with the one-shot. When the one-shot timing ends, it triggers pin #25 generating the explosion noise. Pin #2 is the VCO output and also is used for the "Whistle" effect, or multiplex (MPX). It's also an effective sound "boost," or can be used for an additional effect. For instance, a phaser, with an additional louder phaser randomly firing. Pin #3 is the Noise clock output, and we just use that to drive an indicator. Same with pin #4. Pin #5 controls the charge/discharge rate through the resistor for the capacitors on pin #6, and the same for all the other resistor/capacitor combinations. These control the time/frequency ratios. Pin #5 and #6 are the Noise Filter controls, and the capacitors are disc-ceramic with no polarity. There are a few that will need two capacitors together to get the proper values. Also note that the first position of every 8-position switch is blank. There are only seven capacitors to each switch. Use position #1 as a marker to remind you that the switch is off when none of the other levers are on.

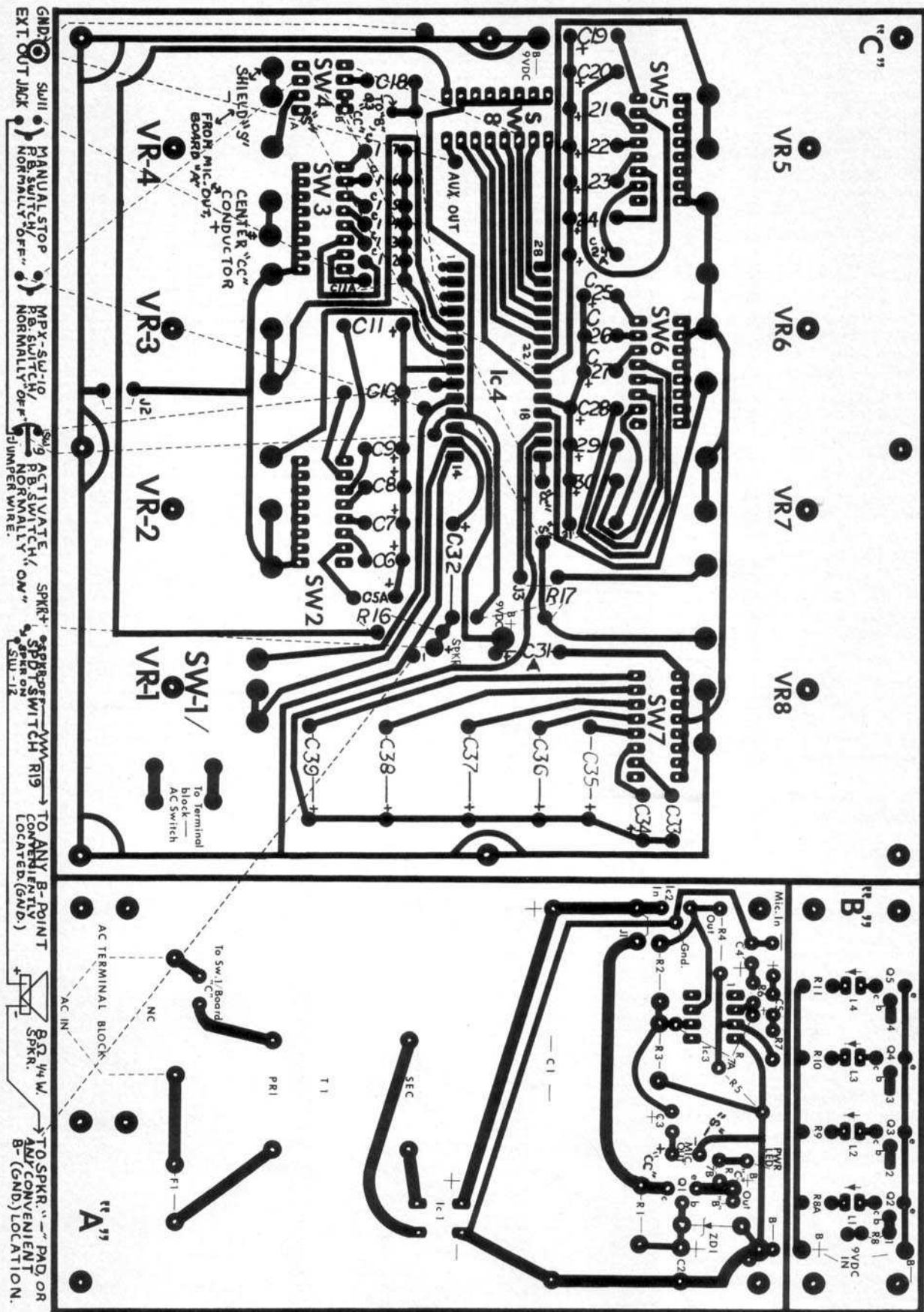
Right: Both the "C" board and the "B" are shown here mounted into position on the project box.

COMPLEX SOUND GENERATOR SOUND LOG

MIXER SELECT INPUTS SW-8			MIXER OUTPUT	ENVELOPE SELECT LOGIC SW-8		SELECTED FUNCTION
C (PIN 23)	B (PIN 25)	A (PIN 24)		ENVELOPE SEL. #1 PIN. #28	ENVELOPE SEL. #2 PIN. #27	
L	L	L	VCO	L	L	VCO
H	L	L	SLF	L	L	VCO
L	H	L	NOISE	L	L	VCO
H	H	L	VCO/NOISE	L	H	MIXER ONLY
L	L	H	SLF/NOISE	H	L	ONE-SHOT
H	L	H	SLF/VCO/NOISE	H	H	VCO/AC
L	H	H	SLF/VCO	LOGIC:		
H	H	H	INHIBIT	X = "ON" - HIGH LOGIC		
				O = "OFF" - LOW LOGIC		
SOUND EFFECT						
PWR/VOLUME						
NOISE GEN. RES.						
NOISE GEN. CAP.						
DECAY RES.						
DECAY CAP.						
AUX. AUD. VCO RES.						
SW-8 VCO SEL. OFF						
SW-4 AUX. VCO ON						
VCO RES.						
VCO CAP.						
MANUAL VCO RES.						
SW-8 VCO SEL OFF						
SW-4 MAN. VCO ON						
SLF OSC. RES.						
SLF OSC. CAP.						
ONE-SHOT RES.						
ONE-SHOT CAP.						
LOGIC CONTROLS - MIXER SELECT OUTPUTS - USE LOGIC TABLE ABOVE						
VCO						
SLF						
NOISE						
VCO/NOISE						
SLF/NOISE						
SLF/VCO/NOISE						
SLF/VCO						
INHIBIT						
ENVELOPE SELECT LOGIC - USE LOGIC TABLE ABOVE						
VCO						
MIXER ONLY						
ONE-SHOT						
VCO/AC						
ACCESSORY CONTROLS - SWITCH # 4						
MULTIPLY (MPX)						
EXPLOSION						
NOTES:						

Above: A sample complex sound generator sound log. Experimentation is the key. Log the positions of all the switches when you come upon a sound you like and would like to be able to duplicate later. Unless you keep a log, you'll have to start from scratch each time.





All 3 PC boards needed for the project are shown above. PC Board "C" is at the top, and fits neatly onto a 6" x 6" PC board (Radio Shack #276-1590). Use these patterns as a guide for etching the boards. Drill only the holes with white centers. On board "C" drill just the mounting holes and the shaft holes for the pots and the DIP switches. Board "A" is at lower left. Drill all the holes on this board. Board "B" is at lower right. Drill ONLY the holes for the LED's on this board (and the four mounting holes located at each corner. After you've finished putting the layout on the PC board, put it up for the night and check it for accuracy the next day after you've had some rest and diversion. Both boards "A" and "B" will fit onto a 3" x 6" PC board (Radio Shack #276-1586). Trace these patterns carefully, the holes for the various components are spaced exactly to size for proper mounting.

The last thing to watch for, is the wiring of the shielded cable at pin #15. I use the braided outer shield as one wire, and then the center conductor as the return wire. See the schematics and layout: "S" is the shield and "CC" stands for the center conductor. Watch the layout for the "which is which" when doing the actual wiring. If you study the photographs carefully, you'll find a lot of information. Note how the board "B" is mounted, and watch the LED polarity. Insulate the power supply board well off the chassis. Above all, *take your time*. If you take the time to study the tech sheet, corrected diagrams and layout for the "feel" of the project, it should take less time to put the thing together.

TESTS AND OPERATION

To test the unit, I'm going to take you through the steps of the first few sounds. Let's go for the phaser first, and then we'll add to it as we go. PHASER: VCO-.005, VCO RES. 3.3 (with calibrated knobs in parts list), SLF OSC-.1, SLF RES. 4.8, Envelope 2 (Sw 8, position 2), Mixer B (Sw 8, pos. 4), Mixer C (Sw 8, pos. 6), VCO SELECT (Sw 8, pos. 7). Press switch #9 (activate) and as long as you hold it down. As long as it's depressed, it will produce sound. Release the switch and it will stop.

Now let's add the One-Shot function. Turn off Envelope 2 (Sw 8, pos. 2) and turn on Envelope 1 (Sw 8, pos. 1). Also turn the one-shot Control resistor to 8.4 (Maximum) and the switch to position 8 (22 uf. capacitor). Press the trigger and hold down until the sound stops by itself. Also, the manual stop switch (#11) works with the one-shot control as a manual override and reset control. (Can also trigger the explosion effect when in one-shot mode and Sw 4, pos. 4 on.) When the one-shot is activated, the decay controls are also in effect, allowing the sound to decay and fade away. It also serves a dual function as the "attack" control. To add an explosion at the end of the one-shot, turn on Sw 4, pos. 4. The decay control varies the length of the explosion. Go back to the first test, phaser only. This time, turn on Sw 4, pos. #3 and press the MPX switch while holding down the trigger. Does the volume increase?

While making the above tests, make sure that all of the other controls and switches are down and off. If everything's correct, it'll go on the first try. With each and every test, take the time to vary the control and switch settings, making mental notes of each set of control's effects. Try varying combinations of switching arrangements and experiment. I'd be interested in hearing what you get out of it. It's a versatile IC and should be able to do a lot.

Let's Hear From You

Send in your suggestions for future projects, and your questions. I'll try to use the best suggestions and answer as many questions as space permits. If you want a personal reply, please enclose a S.A.S.E. and I'll get back as soon as possible. **CM**

PARTS LIST

All of the parts listed are available at your local Radio Shack store. Radio Shack catalog numbers are listed for your convenience in *italics*.

CIRCUIT BOARD "A" POWER SUPPLY/ PRE-AMPLIFIER

IC-1	VM08 Bridge Rectifier	#276-1161
C-1	4700 uf capacitor	#272-1022
C-2	470 uf capacitor	#272-1030
C-3, 4, 5	4.7 uf capacitor	#272-1024
IC-2	5-volt regulator IC	#276-1770
ZD-1	9.1 volt zener diode	#276-562
Q-1	2N2222 transistor	#276-1617
IC-3	741 op-amp	#276-007
R-1	470-ohm resistor	
R-2,3,4,5	100K-ohm resistor	#271-045
R-6, 7	10K-ohm resistor	#271-034
R-7A	22K-ohm resistor	#271-038
R-7B	680-ohm resistor	#271-021
	LED	#276-068
	terminal block	#274-657
	fuse, 3/4 amp. 3AG	#270-1272
	fuseholder	#270-364
T-1	transformer	#270-1385

CIRCUIT BOARD "B" LED INDICATOR BOARD

Q-2,3,4,5	2N2222 NPN transistor	#276-1617
R-8A, 9, 10, 11	680-ohm resistor	#271-021
R-8	10K-ohm resistor	#271-034
L-1, 2, 3, 4	LED panel indicators	#276-068

CIRCUIT BOARD "C" MAIN CIRCUIT BOARD

VR-1 Sw-1	see parts list, board "A"	
VR-2, 3, 4, 5, 6, 7	1 megohm potentiometer	#271-211
VR-8	100K-ohm potentiometer	#271-092
SW-2, 3, 5, 6, 7	DIP mini-switches	#275-1301
SW-4	4-position DIP mini	#275-1304
SW-10, 11	SPST pushbutton, normally "off"	#275-1547
SW-9	SPST pushbutton, normally "on"	#275-1548
SW-12	SPDT toggle	#275-625
R-12-15	not used	
R-16	470-ohms	#271-019
R-17	100K-ohms	#271-045
R-18	not used	
R-19	10 ohms	#271-001
	IC socket, 28-pin	#276-1997
IC-4	SN76488N	
C-11	47 uf electrolytic capacitor	#272-1027
C-10, 19, 25, 36	22 uf electrolytic capacitor	#272-1026
C-9, 20, 26, 35	10 uf electrolytic capacitor	#272-1025
C-8, 21, 27	4.7 uf electrolytic capacitor	#272-1024
C-7, 22, 28	2.2 uf electrolytic capacitor	#272-1420
C-6, 23, 29, 34	1.0 uf electrolytic capacitor	#272-1419
C-24	.68 uf electrolytic capacitor	#272-1418
C-5A, 24A, 30	.47 uf electrolytic capacitor	#272-1417
C-37	100 uf electrolytic capacitor	#272-1028
C-38	220 uf electrolytic capacitor	#272-1029
C-39, 32	470 uf electrolytic capacitor	#272-1030
C-31A	1000 uf electrolytic capacitor	#272-1032
C-11A	100 pf disc ceramic capacitor	#272-123
C-12	220 pf disc ceramic capacitor	#272-124
C-13	330 pf (220 + 100) capacitor	#272-123 & 124
C-14	470 pf disc ceramic capacitor	#272-125
C-15	570 pf (470 + 100) capacitor	#272-125 & 123
C-16	690 pf (470 + 220) capacitor	#272-125 & 124
C-17	940 pf (470 + 470) capacitor	#272-125 & 125
C-33	.005 uf capacitor	#272-130
C-18	.01 uf capacitor	#272-131
C-31	.1 uf capacitor	#272-1069

Miscellaneous:

project box	#270-270	line cord	#278-1255
machine screws #8-32	#64-3013	speaker	#40-262
nuts #8-32	#64-3021	wire	#278-1307
grommets	#64-3025	knobs, calibrated	#274-413
shielded microphone wire	#278-752	panel jack	#274-346
PC board 6x6 inches	#276-1590	direct etching transfers	#276-1577
PC board 3x6 inches	#276-1586	microphone connector	#274-002
etchant	#276-1535		

NOTE: J-1, 2, 3 are jumper wires. All resistors are 1/2-watt, 10% tolerance.

PROFILE

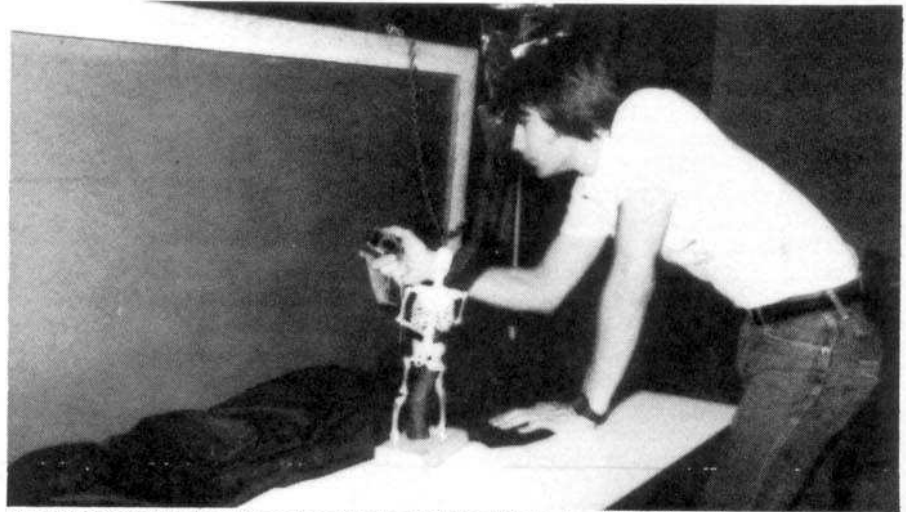
Al Magliochetti: Creating the "Impossible"

By JOHN CLAYTON

Some people just don't listen when they're told that something is impossible. They just go ahead and do the "impossible" anyway. Al Magliochetti didn't pay any attention when one of his film professors told him that the film he wanted to make for his cinema course was too ambitious—that all the opticals he wanted to include in the film were beyond the resources available to a student filmmaker on a limited budget. In most cases the teacher would have been right. Most students who aspire to make special effects extravaganzas aren't really aware of all the work involved. They see only their vision on the screen, not the countless hours of backbreaking effort that go into creating that vision on film. Many who forge ahead against their film professor's advice soon realize that they're in over their heads, without either the time or money to complete the over-ambitious project. But not Al Magliochetti. Al knew all along that he could do everything he set out to do. He did all the opticals himself. His film professor, being big enough to admit that he had underestimated Al's talent and dedication, got up in front of the class and said so himself. The film that he had told Al was "impossible" for a film student to make had just been screened for the class.

Al's film, *Dance Macabre* is a phantasmagoria of bizarre, demonic imagery. Two thieves follow a store owner after he closes his shop for the night and carries cash to drop into a night deposit box. The thieves overtake the man and stab him to death, running off with the loot. They run into a nearby cemetery to escape from the police. There they encounter the evil spirits who lurk in the graveyard darkness. It's a fatal encounter. The stolen money blows around the graveyard and rides the night wind like spirits of the dead. The charred bodies of the ill-fated thieves hang from nooses in a high, gnarled tree.

"I wanted to make *Dance Macabre* ever since I started listening to a New York Philharmonic recording of the musical piece of the same title by Camille Saint-Saens," Al begins. "A friend gave me the record (he had made a film using another piece of music on the album) and every time I listened to it I could visualize



Al Magliochetti meters the white screen of his frontlight back-light set-up that will superimpose a stop-motion skeleton over a live action graveyard scene in his film, *Dance Macabre*.

the spirits of the dead dancing around in a graveyard. I wanted to put these visions on film. The idea germinated in my mind for a few years before I was actually able to begin production on the film, so I had plenty of time to develop a story line to fit to the musical soundtrack.

"We started filming in September of '78," Al reveals. "We got our answer print in April of '81, just in time to make release prints to enter in the CINEMAGIC/SVA Short Film Search and the New England Film Festival. The film was tied for grand prize in the 16mm category in the CINEMAGIC/SVA contest and was a finalist in the New England Film Festival, although it didn't go on to the nationals in the Academy of Motion Picture Arts and Sciences Student Film Awards. I was very pleased that the film did so well in the CINEMAGIC/SVA contest.

"I started making films when I was eleven," Al continues. "I made my first film when I was in sixth grade. It was a paper cut out animation film in Super-8 featuring Snoopy and The Red Baron. I haven't stopped since. I've always had a special interest in special effects and most of my films showcase my special effects talents.

"I storyboarded *Dance Macabre* completely," Al exposes. "There were maybe two or three shots in the entire film that weren't storyboarded. *Dance Macabre*

contains 126 shots—sixty-five of which were optical composites. Twelve shots were straight animation, with no compositing. The most complex shot in the film was shot number 95, which is made up of 43 different elements.

In shot number 95 there's a guy running (one of the thieves), a high gravestone cutting the frame, and the devil is on the other side of the screen, pointing at the fleeing thief. As the devil points, thousands of glowing red bats come out of his body and chase the thief through the graveyard. The bats appear both in front of and behind the gravestone. Only one bat model was built, so many passes through the camera of the bat element (some of which were ganged to include 17 bats) were necessary.

"We shot the live action element of the running thief first," Al continues. "Next, I rotoscoped a stationary matte of the gravestone. The bat element was shot many times so there would be many bats flying in all directions, all shot from the one bat model we built. All the bat elements were combined with the devil footage and printed red, so the effect is thousands of glowing red bats flying out of the glowing body of the red devil. Next, the devil's glowing yellow eyes were rotoscoped in on a stationary matte, which was possible because the devil wasn't moving his head

in the shot. The sky was blocked out with a stationary matte and some dark cloud footage was added in, which was a freeze-frame of ink dropped in a fish tank. All 43 elements were assembled for one shot, which lasts only a few seconds.

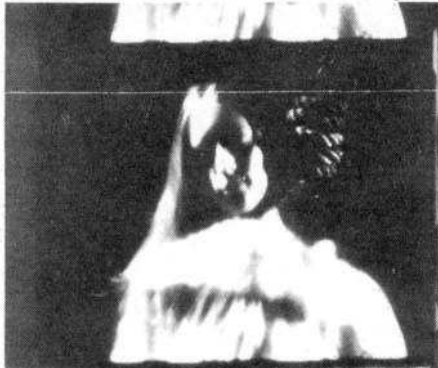
GHOSTLY SMOKE

"We used several kinds of smoke effects in *Dance Macabre*," Al explains. "We used black liquid dropped in a tank, printed negative; white liquid dropped in a tank, printed positive; live smoke on the set, which we created from our own home-made smoke bombs; and animated smoke which worked extremely well. For the animated smoke we took huge, long cards and painted them black and arranged them in very long rows. Then we spray painted some white paint on the cards to simulate the smoke and filmed several passes through the camera, panning down the length of the card construction. The effect appears to be multi-layered and quite convincing. We then superimposed the animated smoke element over whatever live action needed a multi-layered smoke effect.

"We made our own smoke bombs for the live smoke on set," Al elaborates. "I got the recipe from Abbie Hoffman's *'Steal this Book'* many years ago. I've used these home-made smoke bombs to great effect in many films over the years. A word of caution is necessary on the use of this smoke formula: the mixture burns extremely hot (about 1000 degrees centigrade) and care should be taken to avoid burns. The mixture also has a tendency to 'spit' and could cause severe burns if handled improperly.

"This smoke formula creates a great amount of smoke," Al cautions. "If you use a tablespoon as your volume measure (for

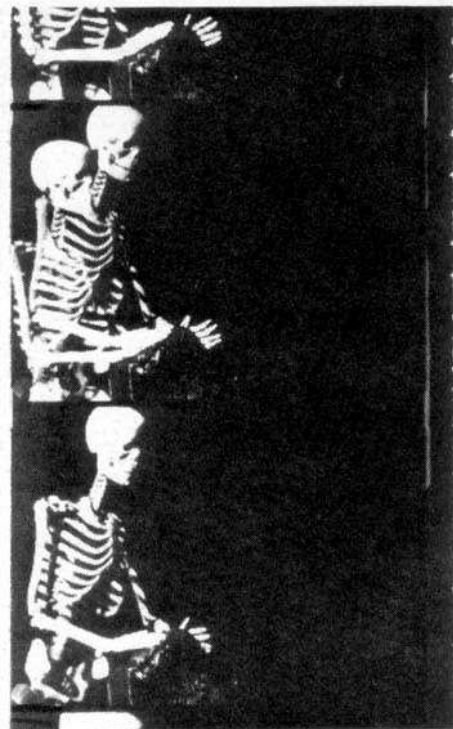
measuring out the ingredients) you'll make enough formula to smoke out a half a city block. There were days when the wind picked up and blew the smoke across one of the main streets in New Haven (Connecticut) where we were shooting. We tried to leave the live smoke shots for the end of a day's shoot so we'd be ready to pack up and run. Since we were shooting wild (no sync sound) we had a minimum of equipment on hand when we shot the live smoke scenes. It was just me, the camera, the tripod, the actors and the smoke bomb. We'd light the bomb, shoot the scene, and high-tail it out of there as soon as we finished shooting. We had a few run-ins with the police as a result of the smoke bombs. Fortunately, the police never arrived on the set while a smoke bomb was still lit. We had one very close call when the cops came right after the smoke bomb stopped burning. There was no evidence left of what we were up to.



The thief looks up in horror when he discovers that the beautiful girl is hanging from a noose.

One of the actors stood on the smoldering remains to conceal it from the police!

"We had several incidents with the police during the course of filming *Dance Macabre*," Al confesses. "I suppose that's one consequence of filming in a graveyard at night with occasional live fire effects. Occasionally some old lady would call the cops to report strange goings-on in the graveyard and our shoot would be interrupted by screaming sirens and the appearance of fifteen or so squad cars. We explained that we had permission, but the police were often skeptical, so we eventually made a point of getting written permission from the parks department that administered the cemetery. Of course, we never fully explained what we intended to do, we just said we wanted to shoot a few scenes in the graveyard for a horror movie that was a school project. If I had told the authorities that I was going to scale



Al double exposed the animation he had done on doubles, one frame out of sync, to smooth it out.

a fifteen foot high wrought iron fence and then fall off with my jacket in flames (Al did this stunt because the actor playing the thief couldn't make it for that particular shoot), I doubt that I would have gotten permission. I have to add that the police were only doing their job when they came to investigate what we were up to and they let us continue after they were satisfied that we weren't up to anything mischievous. They were very co-operative for one scene when we needed a squad car to chase the thieves down the street. They put on their flashing lights and chased the thieves through the scene for several takes.

DAY-FOR-NIGHT

Although the film takes place at night, much of *Dance Macabre* was shot during daylight hours using day-for-night photography. Al developed his own method of effecting day-for-night sequences.

"We originally tried using infrared film to shoot the day-for-night scenes," Al continues. "That worked out the best, as far as non-optical footage was concerned. We developed our own filter pack that would make daylight-shot infrared film look like night. We did this testing with 35mm still equipment. Unfortunately, when it came time to shoot in 16mm, we found out that the minimum order from Kodak is 7,000 feet. We called all over the country trying to find someone who would sell us just the amount we needed, but we were unable to find anyone who would sell us less than 7,000 feet of 16mm infrared color stock.

"We wound up doing the day-for-night scenes on 7252 and 7242 (Kodak emulsion numbers). Occasionally it was necessary to run a scene shot on 7242



A vengeful Lucifer rears his ugly head to give the murderous thief the fate he deserves.

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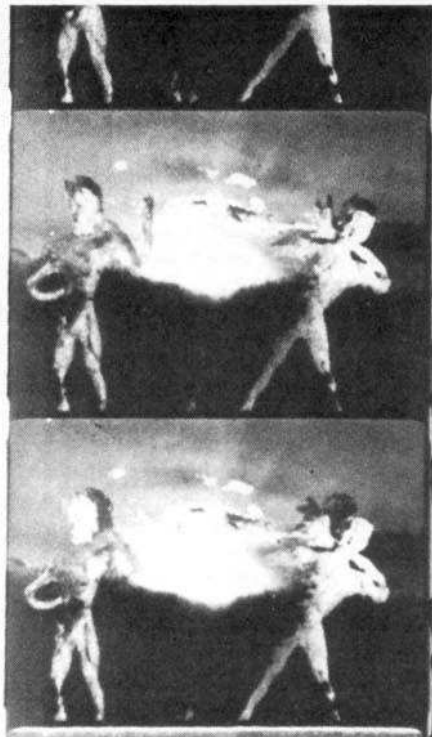
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The demons who inhabit the graveyard start to fade to dust as the sun rises over the cemetery.

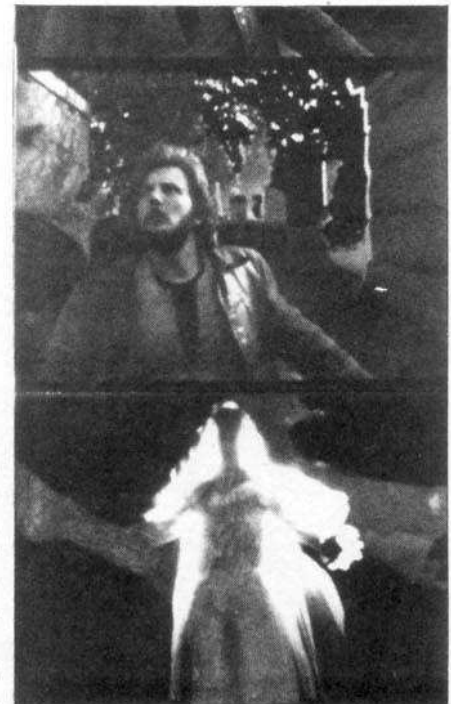
through opticals, but it wasn't usually necessary. Sometimes we underexposed to achieve a day-for-night effect, but it wasn't usually necessary because we were going to re-photograph the scene with added elements on the optical printer anyway. We also developed a dichroic filter setting for day-for-night that we could just dial in when we needed it on the printer. The modified JK printer that I used for opticals featured a dichroic filter pack from a color enlarger head that really made day-for-night very easy because we could just dial in the filter setting and close the f/stop ring on the camera down a predetermined number of stops and we had an instant day-for-night effect for re-photography on the optical printer.

"We frequently underexposed the original photography for the day-for-night scenes, to enhance the effect before optical printing," Al elucidates. "It all depended on the contrast and the lighting situation on the set. If there were lots of shadows, we underexposed by one f/stop—occasionally two f/stops if we felt daring. One thing we learned about day-for-night is that it works best if you shoot it on the sunniest day possible so you can get very stark shadows. We would then take a light reading of the brightest area of the scene and underexpose that by (usually) one f/stop, which causes the shadows to go extremely black. The only thing we had to worry about was the sky, which was taken care of either by stationary mattes or high contrast printing. We found that stationary mattes worked much better because they were easier to

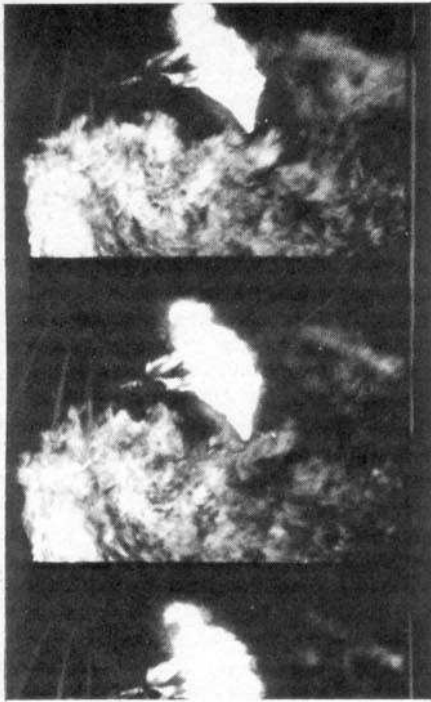
register. The stationary mattes, more than anything else, helped us achieve the day-for-night effect. The other technique that made our day-for-night system work so well was our dichroic filter pack on the optical printer. We'd just pump up the blue a little by turning a dial on the filter head.

"Of course stationary mattes only work for locked down shots," Al explains. "We had several shots in the film that were pans, and obviously we couldn't use stationary mattes to block out the sky for a day-for-night effect if we were panning through the scene. We had to calculate the speed of the pan from point 'A' to point 'B' and figure out each incremental position and make a separate matte for each frame. My favorite shot in the film is a pan day-for-night shot that features live action of a running thief and a stop-motion skeleton watching him from behind a tree. We didn't use any rear screens in combining the live action with the stop-motion animation—it was all done with front-light back-light mattes. I did all of the separations myself in the optical printer using high contrast printing and color manipulation.

"Not all the night scenes were shot day-for-night," Al confides. "Lighting on the set at night was difficult at times. Most of the time we were able to secure electrical power to run a sufficient number of lights. Many scenes were filmed in various backyards, mostly mine because it's pretty big and obviously accessible. When we had to shoot at a location that didn't provide access to electrical power we used a battery powered 750-watt Sungun. Usually that was enough light for



The thief discovers the glowing spectre of the girl floating above him. Note the posterization.



Lucifer turns the thief into a ball of flame as he tries to escape. Al did the stunt himself.

us to record the scene. One of the reasons we used so much day-for-night was because it made filming easier and the results were more controllable."

GRAVEYARD GHOULS

There are dozens of demonic creatures haunting the graveyard in *Dance Macabre*. They're stop-motion models designed by Jon Redmond and constructed by Dan Karlok, Gary Magliochetti (Al's brother), Joe Pascal, Jon Redmond and Ed Rosato. The demons catch the thieves and frighten them so badly that they drop their ill-gotten money and run like hell. The last few moments of the film is a rapid-fire sequence of all the demons charging (done with zooms) at the viewer in sync with the crescendo of Saint-Saens' music and then fading to dust (done optically) as the sun rises over the cemetery.

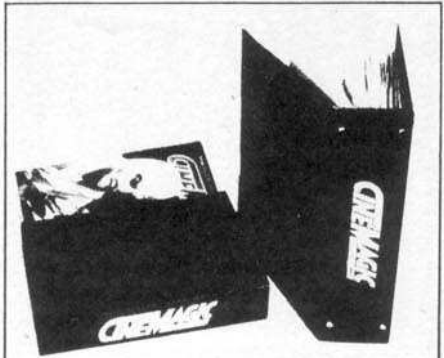
"I'm not really happy with the animation in the film," Al admits. "I don't consider myself a very good animator, but I think that the animation sequences succeed in conveying the mood I was trying to capture. The problem with the animation, in my opinion, is that it's too jerky. It had nothing to do with the system of using front-light/back light mattes to combine the live action and animation, it's just that the animation footage isn't smooth enough for my taste. Most of the animation sequences that were combined with live action on the optical printer were shot on single frames, so they're not too jerky. The other shots that were just stop-motion animation with no added live action were shot double frame, which I think was a mistake. The double-framed animation suffers from excessive strobing and jerky movement. I don't think I'd ever shoot stop-motion on double frames again.

"Another problem with the animation is that I wasn't really familiar with armature construction at the time I made the film," Al confesses. "The armatures we used for the stop-motion models aren't very good and they didn't have the flexibility of movement they should have had. One technique we used in the animation sequences that worked fairly well and that I would use again was using armatures with extra lanky arms that dangled. We had a fairly slow animation motor on the camera and we'd tap the armature just before taking the frame, which caused the model to jiggle a little and add a slight blur of movement that helped cut down on the strobing effect. It isn't quite as advanced as the "Go-Motion" technique developed for *Dragonslayer*, but it definitely helps the models appear more life-like. Another technique I tried to help smooth out the animation I had done on double frames was to take the footage and run it through the optical printer at half exposure (closed down one f/stop). I made two passes through the printer—throwing the footage one frame out of sync—and that helped cut down on the strobing.

One of the most interesting effects in *Dance Macabre* is a shot of a beautiful girl in a flowing white gown seemingly floating in mid-air. One of the thieves sees the girl and moves toward her, apparently entranced by her beauty. The girl holds out her arms like a siren to a doomed sailor. The thief reaches for her but can't touch her because she's floating in the air over his head. The girl appears as a glowing spectre of beautiful light. Suddenly the thief looks at his hands and sees that blood is dripping onto them from above. He looks up and now sees that the girl is drenched in blood and hanging from a noose. He runs away in horror. The scene



The beautiful girl suddenly turns into a bloody corpse and drips blood onto the doomed thief's hands.



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Al composited this stop-motion skeleton over a live action scene by front-light back-light mattes.

graphically reminds the viewer that the thief's hands are stained with blood—the blood of the man he killed—and that he will be repaid in kind.

"The glowing spectre of the girl is a slit scan effect," Al exposes. (See A. Sharples' article on creating slit scan effects in CINEMAGIC #13.) We shot the girl, played by Gail Welter, on Kodachrome 7387 because we wanted to get a very deep black. Everyone thought I was crazy to use Kodachrome to shoot the scene because it's very contrasty and strictly a home movie stock for most purposes. Everyone said I'd never get a decent print from Kodachrome. But I was after a very contrasty image with deep color saturation and heavy blacks, so it was the perfect choice for the effect I was trying to create. Kodachrome is also very good for shooting titles because of its high contrast and deep color saturation. We put Gail up against a black velvet screen and backlit her while she made her arm movements. We also aimed a fan at her from the front to keep her dress blowing. When we ran the footage through the optical printer we had to draw a garbage matte around her for the long shots because our velvet screen wasn't big enough to cover the entire frame. We also double framed the footage in the optical printer to add a spectral jumpiness to it. It's one case where I actually wanted the image to be jumpy.

"To create the slit scan effect for the glowing spectre shot we set up a single frame 16mm projector, a magnifying lens and a piece of frosted glass on my kitchen table," Al continues. "The image of Gail in the flowing gown—since it was such a

grainy Kodachrome image anyway—was rear projected onto the frosted glass. We set up a movie camera and re-photographed the footage onto black-and-white stock. We used Plus-X for the re-photography because it's contrasty without being too contrasty and it has a high enough ASA rating to make it useful for this kind of work. We then took a light reading off of the brightest part of the image on the fronted glass screen and made calculations so that the brightest part of the image would be extremely bright and almost totally wash out. Then we set the 16mm camera on time exposure and zoomed in on the image, doing an increasingly more powerful zoom on each frame so the image would appear to start out small and eventually zoom right off the screen. We advanced two frames on the projector for every frame we re-photographed with the slit scan zoom. We added color by re-photographing the Plus-X footage onto color stock using filters. Unfortunately, Gail was moving so little in the shot that there's almost no apparent movement in the shot except for the slit scan. I think the same technique could be used to great effect on a shot that has much more action in it.

"The slit scan of the glowing spectre is one of the very few shots that wasn't in the original storyboard," Al confides. "Originally we planned on doing a Hitchcock-type of dolly shot to zoom in on Gail with her arms outstretched, but we couldn't get a usable take, so I eventually thought of a slit scan shot. It seemed to fit into the scene and it worked much better, so it turned out to be a viable solution to the problem I faced by being unable to get a usable dolly shot.

"We designed our own rotoscoping



This graveyard ghoul seen grabbing the thief's boot is a clay stop-motion model.

system for creating the stationary mattes in *Dance Macabre*," Al exposes. "We modified a regular photographic enlarger to accept 16mm clips. We made a cardboard film gate for the enlarger that had an opening just big enough to show three 16mm frames at a time, including the sprocket holes. This allowed us to see the frame we were rotoscoping and one frame on either side of it. We lined the gate with soft felt to protect the film from scratches as we pulled it through. The first step was to project the film down onto the enlarger table and trace the master frame outline. The exact perimeter of the frame was painstakingly sketched, including the corners, frame line and sprocket holes. We put a cross-hair in each projected sprocket hole for line-up. We then placed a cel over the master and rotoscoped the stationary matte. When we got to the animation stand, we used a prism inside the animation stand. We didn't go through the viewfinder because we didn't have the luxury of a rack-over viewfinder. We lined up the master, corresponding to the frame borders and then lined up the stationary matte with the master frame outline. We achieved very good registration with this system and I wouldn't hesitate to use the system again."

Probably the most outstanding aspect of *Dance Macabre* is the fact that Al did all of his own opticals and devised ingenious techniques for getting exactly the results he wanted without access to a professional optical printer. Al's use of front-light/back-light mattes and the method he devised to register his rotoscoped stationary mattes attests to his resourcefulness.

Al describes the technique of front-light/back-light mattes. "To do front-light/back-light mattes you start with a standard tabletop animation set-up," Al continues. "You place a black screen behind your animation set-up and light the scene to your satisfaction, so that you can record detail on the side of the animation model facing the camera. You then shoot one frame (or two if you're double framing). After shooting the frame (without moving the animation model) you turn off the front lights (all the lights used to light the set) and remove the black screen. You then place a rear projection screen in place of the black background screen. Actually, the rear projection screen should already



Element "A" of shot #92 is the original high contrast camera negative of a vengeful Lucifer.



Element "B" of shot #92 is a high contrast print of "A". Al composited the shot in the JK printer.

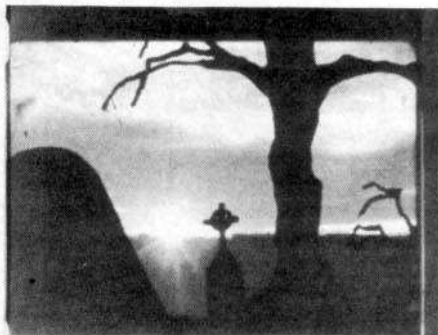


Element "C" of shot #92 is a rotoscoped eye matte (from element "B"). The Devil's eyes are yellow.

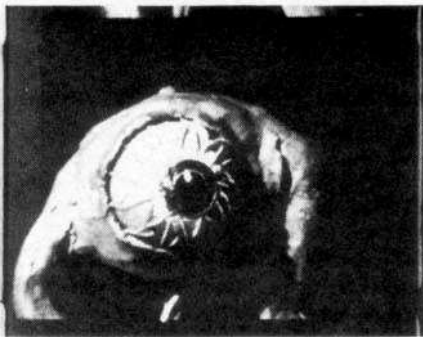
be in place behind the black screen so that you simply have to remove the black screen to set up the rear projection screen. I just used a piece of black velvet in front of the rear screen as my black screen. After you've removed the black screen and turned off the front lights, you turn on a white light source behind the rear screen so that when you shoot the next frame you'll just get a silhouette of the animation model against a solid white background. You then move the animation model to its next position and repeat the process for each incremental movement of the model.

"When you have the film processed you'll have one frame of the model lit from the front against a black background followed by one frame of a silhouette of the model against a white background, with the pattern repeating for the entire animation sequence. Next, you take your processed front-light/back-light footage and—using an optical printer—transfer your front lit frames onto color stock and the back lit frames onto high contrast matte stock. You have to be careful to avoid taking an extra frame anywhere along the way, or you'll throw the whole sequence out of sync. You then (using separate passes through the camera) re-photograph the front-lit color footage; backwind (to the exact frame that began the first pass) and re-photograph the high contrast matte stock in bi-pack (both elements are photographed simultaneously) with whatever footage you're using as your background element."

Obviously, if you're combining live action with stop-motion, the front-light back light technique won't allow you to choreograph intricate movement (such as a sword fight between a live actor and a



The entire foreground of this shot is a silhouette matte that was composited in the JK printer.

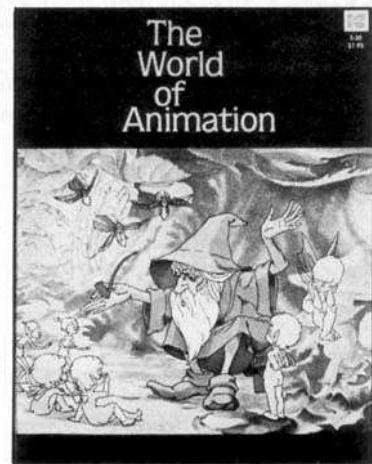


This monstrous creature, seen very briefly in *Dance Macabre*, is clay and a dime store rubber eye.

stop motion monster) because you won't be able to see the live action element while you're doing the stop motion animation. But AI used the technique to great effect in *Dance Macabre* and the stop-motion demons seem to react perfectly to the movements of the live actors. He obviously went to a great deal of trouble to achieve these naturalistic reactions from the animation models. You could conceivably achieve intricate movement with the front-light/back-light system if you: set up a single frame projector behind the rear projection screen, bounce it off a front surface mirror at a 45 degree angle to the axis of the projector lens (a normal rear projection set-up); use the live action footage only as a guide and make sure to turn it off and turn on a regular white light source to use for the back light frames. It seems like more trouble than it's worth for intricate movement, and the only advantage is that your live action element won't have the graininess of a rear projection shot. However, your animation model element will lose two generations. You could save one generation by re-photographing the animation model element off of the original front-light/back-light footage instead of making a copy just to get rid of the back-light frames in between, but make sure you don't accidentally re-photograph any back-light frames in the process or skip any front-light frames! If you have access to an optical printer (or if you've made one for yourself from the how-to articles in CINEMAGIC #'s 4 and 5) and you decide to try this technique—good luck! Let us know how it works.

"The opticals would have cost about

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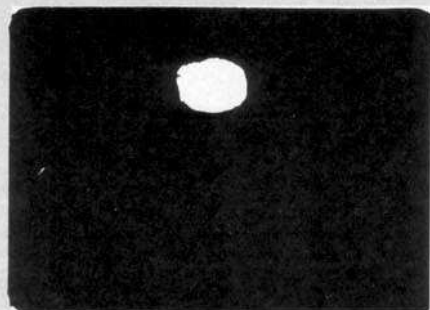
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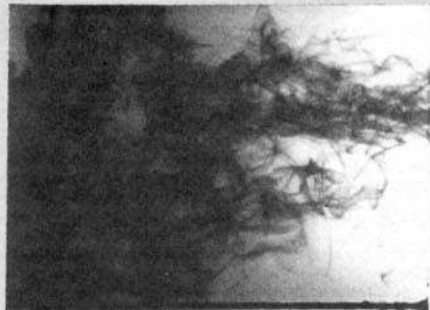
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Element "D" of shot #92 is a negative print of "C". The final composite appears in color on page 35.



Element "E" of shot #92 is the "sky" footage to add clouds. This element is liquid in a tank.

\$7,000 if I had farmed them out to optical houses," Al resumes. "It wound up costing me under \$500 because I did all the opticals myself on the school's (University of Bridgeport) modified JK optical printer. The modifications, designed by film department chairman Gerald Wenner, included the dichroic color enlarger filter head, which allowed me the luxury of dialing in any color corrections I needed for the effects sequences. The dichroic head made day-for-night shooting a breeze, once I figured out the filter setting (adding some blue) that made my daylight shots re-photograph into convincing night scenes. My budget was originally set at \$2,000, but in the middle of production the price of silver skyrocketed. The price of high contrast stock 7362 went up 70 percent. As a result of the increase in film prices, *Dance Macabre* wound up costing just under \$3,000.

"The modification to the JK printer also had the added advantage of greatly increasing the depth of field I was able to attain," Al continues. "In addition to adding the dichroic filter head, we replaced the lamphouse assembly that came with the printer with the lamphouse assembly from the color enlarger and as a result we replaced the original filliment bulb with a quartz bulb. Before modification, the lamphouse was only bright enough to allow me to shoot at about f/4 or f/5.6. After modification the widest f/stop I could use without over exposing was f/11, which obviously had great advantages for depth-of-field. This added depth-of-field allowed me to confidently shoot bi-pack and tri-pack passes. We also added a fan to keep the bulb housing cool.

"At first I had thought about farming out the opticals," Al illuminates. "But I got the impression from what the lab people told me that they couldn't do the opticals any better than I could. The first thing I heard from most labs was that they would have to blow my 16mm footage up to 35mm to do the opticals. I started seeing dollar signs floating at me in my sleep and I realized that there was no other way to make the film but to do the optical work myself. I also felt that it would be more satisfying to be able to say that I did everything in the film myself. I'm solely responsible for all the strengths (as well as the weaknesses) in the film.

"I had a problem keeping the tri-pack passes registered," Al admits. "The JK Printer just wasn't designed to handle tri-pack, but I had designed some of the shots in the film to be tri-pack, so I attempted them despite the fact that the printer wasn't built to handle them. I had to compromise in some cases. For example, I had to settle for a freeze frame cloud background instead of a moving cloud background, but it turned out that there wasn't any noticeable difference. There were a few shots in the film where an element jiggles a bit, but they're not terribly noticeable and the shots are essential to the story. For the tri-pack, I had to take

separate frames (like the freeze-frame clouds) and tape it to the back of the projector gate to add the third element. I couldn't consult a depth-of-field chart because we were using an enlarger lens instead of a normal shooting lens on the camera, but it didn't matter because we had such great depth-of-field. In fact, if I intentionally wanted an element to be slightly out of focus (as for a smoke effect) I had to place the film about one inch in front of the lens!

"To make it easier to match the optical shots with the non-optical shots we shot all of the non-optical shots on 7242 and the optical shots on 7252 because the opticals had to go through a second generation," Al explains. "We used an Arri BL camera for most of the optical shots because we needed the pin registration, but a few shots were shot on a Bolex because the Arri wasn't available all the time. There isn't a great deal of difference between the two, except the Arri images are steadier.

"The shooting ratio for opticals was about 4 or 5 to 1," Al continues. "It usually took at least four takes to get the opticals right. I started doing tests on color balancing and other details. It got to a point where I'd shoot a test and send it out for processing and when I got it back it was perfect, except that it was only a test so I'd have to reshoot it anyway. I started shooting the opticals the way I thought they should be shot—without doing tests—and if they turned out to be usable I was ahead. If they had to be reshot it didn't cost any more than shooting a perfect test. Towards the end of shooting I had gained enough experience to be able to bring the optical shooting ratio down to about 2 to 1.

"There are about five matte paintings in *Dance Macabre*," Al confides. "They were all silhouette paintings so we didn't have to paint in any detail and the shots were constructed so there'd be a natural silhouette in the position that the matte painting covered. Mostly the matte paintings were simple silhouettes of grave-stones and the cemetery gates.

"Since there's no dialog in *Dance Macabre*, I picked my actors more for their appearance than anything else," Al reveals. "As it turned out, my lead player—Richard Schellbach—turned out to be a very good actor in spite of the fact that I only picked him because I thought he looked tough. The other actors all turned in good performances as well, even though their parts were limited."

There's some very impressive posterization effects in the final moments of *Dance Macabre*. The terrified thief runs for his life with the devil hot on his trail. Everything in the graveyard turns blue and red. It's a psychedelic vision of hell.

"The idea to use blue and red posterization was Irv Magilnick's, my lab man," Al confesses. "I was very fortunate to have such a helpful lab. I used Magilnick Film Labs in Monroe, Connecticut. The original footage was shot in black and white and high contrast positive and negative was

struck from the black and white footage. I then ran the high contrast negative through the printer and shot it through a red filter, backwound and shot (in perfect sync) the high contrast positive with a blue filter. This reversed the tones of the original footage, since the original dark areas were printed with a bright color (red) and the original light areas were printed dark (blue). It creates a very eerie effect.

Al Magliochetti created the most visually exciting film entered in last year's CINEMAGIC/SVA Short Film Search. He's a special effects wizard of the highest order. He's currently looking to break into professional filmmaking. He's got a fantastic demo reel to show and he's sending it off to places like ILM. The public television station in New York City (Channel 13, WNET-TV) has expressed an interest in airing *Dance Macabre*. He's also discussing the possibility of showing the film to the Creation Conventions (see the Profile in CINEMAGIC #17 about the Convention circuit). He's currently working on pre-production for a television pilot (the tentative title of the first episode is *Moon Stone*) which is a children's fantasy show featuring hand puppets that is being produced by LSB Productions. He'll be in Los Angeles for the second half of the summer working on the pilot. Sounds like he already has his foot in the door.

A career in filmmaking isn't always steady work, but the people who love it wouldn't trade their profession for any other in the world. Once talent is recognized it's usually employed. The best special effects artists and filmmakers have more offers than they could ever possibly handle. That's what creates opportunity for the up-and-coming in the film industry—people like Al Magliochetti—the next generation of special effects wizards who will make the "impossible" happen. **CM**

Dance Macabre Credits

Cast

First ThiefRichard Schellbach
 Second ThiefTom Vergato
 VictimCharles Kalbfeld
 DevilJon Redmond
 Woman in WhiteGail Welter

Crew

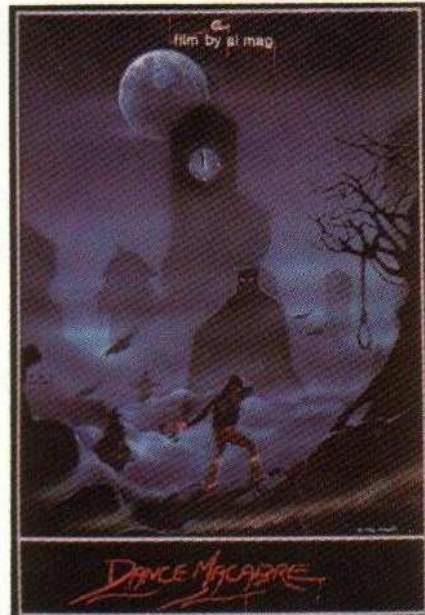
CameraDennis Peter, Chris Vegliante
 Production AssistantsBob Briar
 Bill D'Eugenio, Kim Gageby,
 Mark Kalbfeld, Frank Moroz,
 Geraldine Shea, Tom Snell,
 David "Eyes" Stadalnik, Paul
 Treichel

Model DesignJon Redmond
 Model ConstructionDan Karlok,
 Gary Magliochetti, Joe Pas-
 cale, Jon Redmond, Ed
 Rosato

Optical EffectsAl Magliochetti,
 Irv Magilnick

MusicCamille Saint-Saens
 Music Performed ByThe New
 York Philharmonic

Written and Directed by ...Al Magliochetti

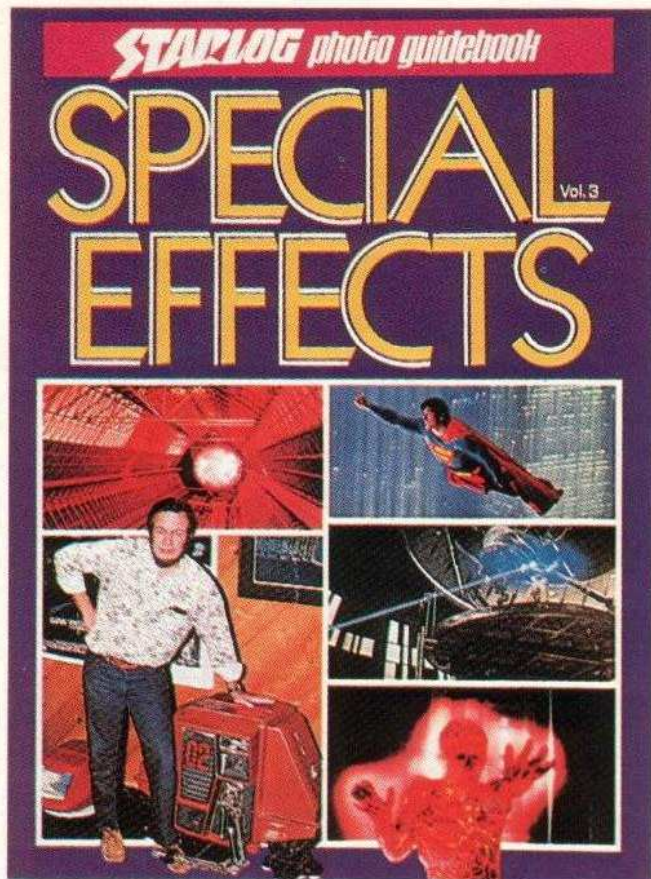


Far left: The slit scan effect of the glowing spectre as seen in *Dance Macabre*. Magliochetti created the effect to replace a complex dolly shot that he couldn't get to work.

Upper left: An infuriated Lucifer brings his terrible vengeance upon the murderous thief in *Dance Macabre*. This shot contains five elements. **Lower left:** The graveyard ghouls fade to dust as the sun rises over the cemetery. The animation models were composited with the background plate by front-light/back-light mattes. **Immediate left:** A posterized shot of the thief running through the graveyard. Al did the posterizations on his school's modified JK optical printer. **Top of page:** A frame blow-up of shot #95, the most complex shot in the film, which contains 43 elements.

Above: A publicity poster for *Dance Macabre*, done by Al's artist friend, Ioannis.

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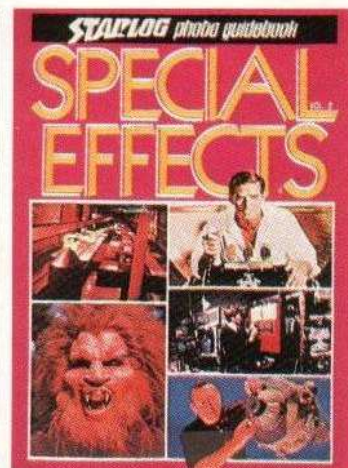
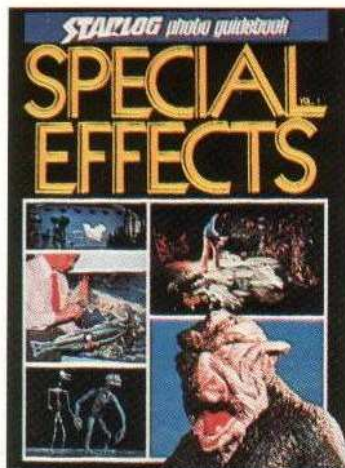
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