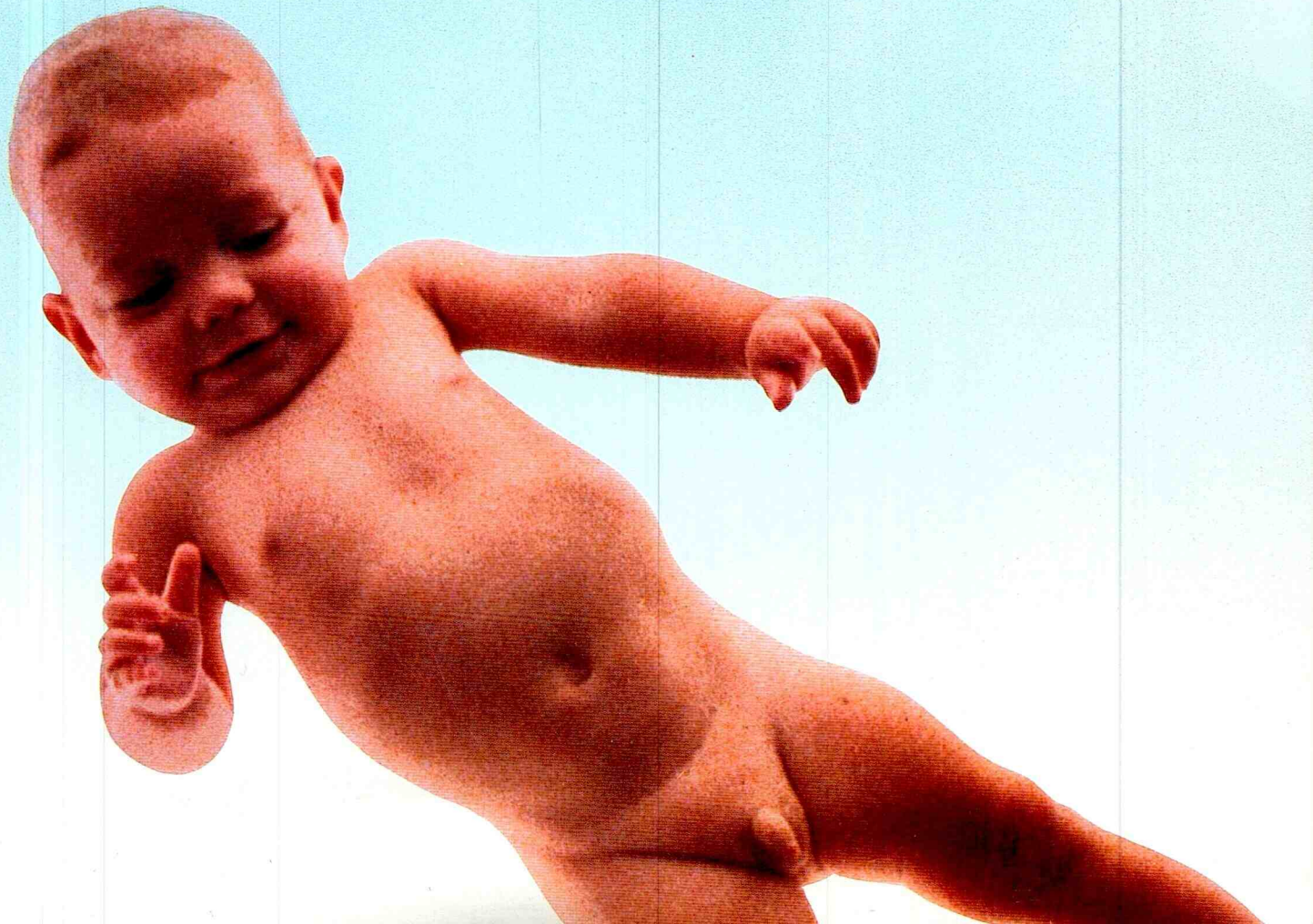
IMAGES IN MOTION

R/GREENBERG ASSOCIATES, A DESIGN ANATOMY

DESIGN QUARTERLY 144



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R/GREENBERG ASSOCIATES, A DESIGN ANATOMY

BY VICTORIA GEIBEL

DESIGN QUARTERLY 144


LAD

EDITOR'S NOTES

Several years ago *Design Quarterly* initiated a series of "design anatomies" conceived to analyze the tools and working methods of professionals in fields that involve design either directly, as would be true in the case of an architect, for example, or indirectly, as in the case of Julia Child, our first subject, whose kitchen was the target of a 1977 analysis by the industrial designer Bill Stumpf.

Julia Child's kitchen was not selected for study because it is elegant or fashionable, but because the organization of her working environment is based on a profound understanding of the tools (or *batterie de cuisine*) and processes of cooking. Hers is a formidable "undesigned" design.

The tools of various other trades have come under scrutiny since that first essay, and for this issue on R/Greenberg Associates' graphics for film and television, a design anatomy again seems appropriate to the subject. But our examination in this issue of R/GA's spaces, tools, and working methods differs in a number of ways from the Child example: Julia works at home with her husband Paul Child as wine connoisseur and chief advisor; R/Greenberg Associates has a staff of eighty, for whom teamwork and collaboration are paramount to the success of each undertaking; the pots and pans, mixers and food processors of the chef are replaced here with robotic cameras, computers, and fiber optics. But those differences aside, the quality of what is made in both circumstances comes down to the fertile minds and organizational skills of the practitioners. Therefore, we assume as a given the creativity of the Greenberg design staff; what we are examining is the process they have developed for the production of their remarkable optical effects and film graphics.

These anatomies are presented with a single proviso: neither Julia Child's kitchen nor R/GA's studios are proposed as examples to be copied. These two environments are, in fact, so specific to their tasks, so idiosyncratic, that attempting replication would not be useful. Instead, it is the inventiveness of the ideas behind these environments and the ability to articulate them clearly that we propose for emulation.

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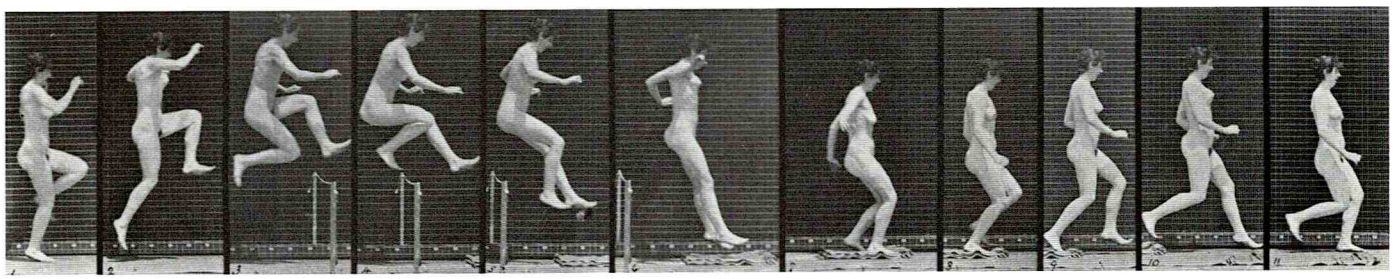


Eadweard Muybridge's pioneering photographic study Woman Jumping over Low Hurdle was originally published in the eleven-volume work Animal Locomotion (Plate 155), 1887.

FOREWORD

In the opening title sequence for the 1982 film *The World According to Garp*, a baby floats effortlessly in the sky—gurgling, smiling, clutching its feet in delight. This baby has been given the gift of flight by R/Greenberg Associates, a New York-based company known for its ability to challenge visual conventions, rearrange reality, and perform a type of twentieth-century magic.

In truth, the baby did not fly; a motion-control camera panning over the small wiggling body produced the illusion of flight. But in watching the film, we willingly suspend our disbelief, mesmerized by the visual impact of the moving image before us.

R/Greenberg Associates was founded in 1977 by two brothers, Richard and Robert Greenberg. Since that time, the company has evolved from a small firm specializing in commercials, film opticals, and special effects to a complex enterprise providing a variety of services: conceptual design, special visual effects, feature film titles and logo design, feature opticals, second unit photography, live action, motion control and stop motion, animation, computer-generated imagery, editing, prop construction, and digital video opticals.

This variety underscores the company's long-term objectives. Convinced that all information industries will merge within the next decade, R/Greenberg Associates is embarked on a course designed to integrate three previously autonomous media—film, video, and computer imagery. This approach, both prescient and practical, is in response to sweeping changes that are reshaping visual communications: the proliferation of cable television channels; the consolidation of advertising agencies; the acquisition of magazines by broadcast industries and vice versa; the explosion of computer technology. All have contributed to the dissolution of boundaries between broadcast, print, and computer industries. R/Greenberg Associates is not alone in recognizing this trend. The Media Lab at The Massachusetts Institute of Technology is devoted to a similar interdisciplinary approach; but the MIT approach is more inclusive, encompassing design, engineering, psychology, science, and artificial intelligence, while R/Greenberg Associates' primary focus is on the design of images for film and television production.

"We're using new technology to create imagery that people haven't seen before," explains Robert Greenberg, chief executive officer and general manager of R/Greenberg Associates. "Sometimes they are new only because of the application, other times they are new because they really do represent new invention. But it is particular projects that tend to push the technology." (R/GA was part of a team that won an Academy Award for the invention of a new optical printer.) Innovation, in fact, has prompted the company's ongoing expansion.

Once operated out of a midtown Manhattan brownstone apartment, the company today has eighty full-time employees, and often more than two dozen freelancers working in a 50,000 square foot production facility on 39th Street. Originally Richard was the company's sole director; now nine directors work with the company in loose contractual relationships. Initially the company functioned with a minimum of equipment; today it has one of the most sophisticated integrated computer systems in the country.

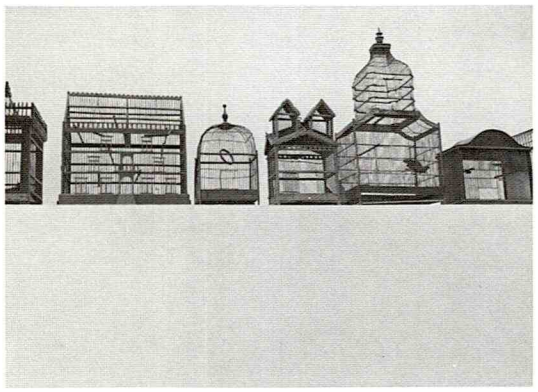
"Our whole interest is in bringing together people from disparate technical and creative backgrounds," says Robert Greenberg, "and watching a broad mix of ideas coalesce and take shape." A conjunction of contrasting sensibilities has marked the company from the very beginning. Richard, the original creative force behind the company, came from a background in graphic design. Robert, responsible for the company's financial health as well as its technological development, had managed a Canadian business. Their personal styles are different, but together they decided to act on Richard's aim of bringing the sophistication and variety of two-dimensional graphic design to three-dimensional imagery. "I always felt there was a big hole between the level of print design and the level of graphic design used in movies," recalls Richard. "I thought there was a place for the other aesthetic. The good work we have done deals with finding the essential metaphor. Simplicity. Not overproduction. Trying to find the essence of a subject and building on that."

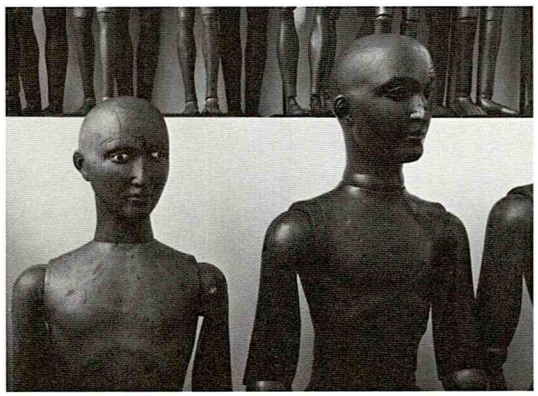
Today, however, this approach has been tempered by the addition of new directors and new equipment. Richard's vision of a crisp, reduced, visual sensibility (often the consequence of hours of complex planning), has been modified to reflect the injection of additional directorial talent. Now the company

strives for the seamless integration of many elements. And since those elements often include typography and special effects, the distinctions between the two become less prominent and more porous. The segmented titles of the feature film *Alien* (1979), for example, could not have been created on a static piece of paper. Nor could the intersecting, abstract elements of the *American Playhouse* (1987) title be achieved without camera animation. Thus, in creating motion graphics, R/Greenberg Associates defies traditional labels both in its product and in its organization.

"The company is staffed by people from varied backgrounds, but primarily from design, which is why our work has a more graphic quality than that of many other production companies," Robert explains. "As the company grew, we added technical experts who communicate with designers. Then more equipment and more designers were added to give us control over the design process. The result is an integrated design-film production company."

Such merging recalls the Bauhaus, the German design school organized by Walter Gropius in the 1920s, in which the study and practice of painting, architecture, industrial design, film, and the performing arts were integrated. (The school was closed by the Nazis in 1933.) Indeed, the Bauhaus does serve as a source of inspiration for Robert Greenberg who sees certain similarities between his company and the German model: a commitment to the crossover of disciplines, an endorsement of technology, and an exploration of new materials. Yet the technology employed at R/GA is far beyond any envisioned at the Bauhaus. And the company's method of organization is unique to its mandate.





Richard and Robert Greenberg are both avid collectors of various genres of folk art, a far cry from the character of their Bauhaus-like building. Seen in these photographs: a sampling of birdcages and wooden mannequins.

Unlike a mass manufacturer, the company has no backlog; each project is custom made and completed under rigorous deadlines and inflexible budgets. Such complexity prompts Robert to compare their process to that of a "symphony orchestra, with sounds coming in at precisely the right time, using a strict notation system."

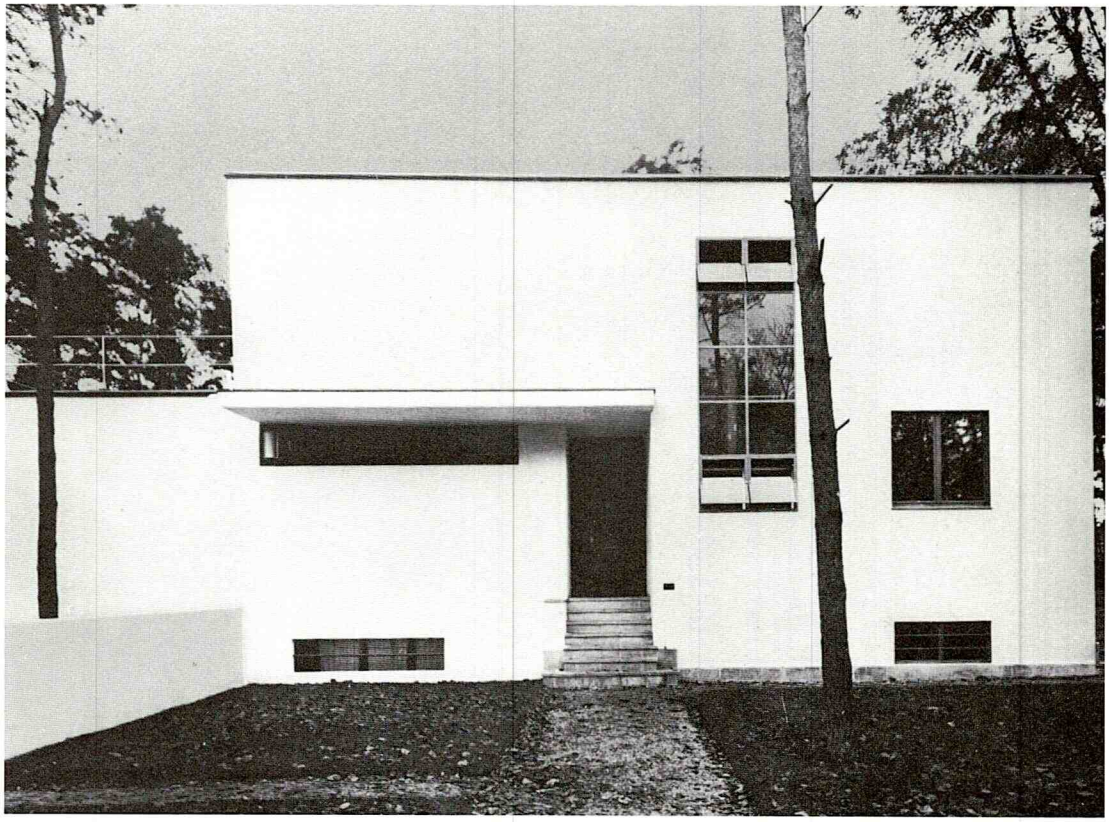
The company's experimentation with new computer technologies is the expression not only of a desire to invent new special effects but also of an attempt to create images that look less simulated, more natural. Such a pursuit seems particularly ironic. To simulate the directness and spontaneity of real life, an elaborate battery of sophisticated interactive equipment must be readied and programmed, yet without such preparation reality cannot be duplicated and animated.

"When you are dealing with technology, with elements that are inherently cold, it is vital to contrast that with the warmth of human involvement," Richard explains. "We are human beings. We can only perceive the world through ourselves. What makes special effects work, in both feature films and commercials, is human emotion."

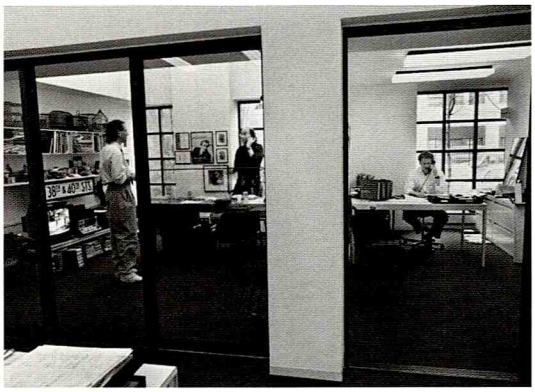
"The question is how do you make a computer soft, even approachable," Robert adds. "You have to simulate flicker. You have to simulate all the imperfections in the system to make people understand it."

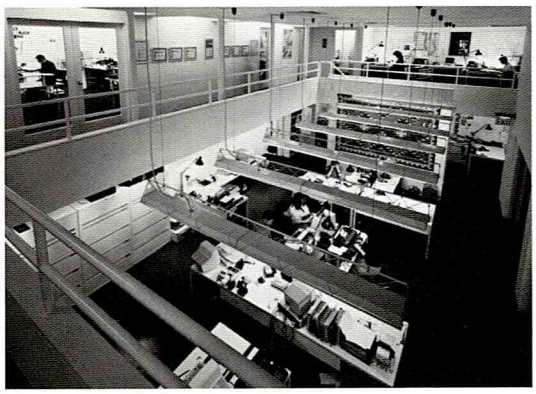
That impulse, to provoke a human response, is reflected in the brothers' art collections. In sharp contrast to the formidably efficient machines found in his workplace, Robert Greenberg lives in a loft surrounded by folk art, paintings by twentieth-century visionaries such as Reverend Howard Finster, William Hawkins, William Edmondson and Bill Traylor; artists' mannequins, hand-carved brightly colored fishing decoys, and sound sculptures by Harry Bertoia. "This art does not grow out of an academic study. It's emotional, human, provocative and honest. It's really a reaction against technology." Richard collects birdcages — many on view in the foyer of R/Greenberg Associates. "They interest me because of their movement," he says of the cages. "They're pierced by light and air. They define three-dimensional space."

At a much more elaborate scale than that of the birdcages, R/Greenberg Associates defines and designs three-dimensional space. But often, that space is completely illusory, anchored in a computer data base rather than a natural environment. Computer-generated imagery, simulated, animated, completely fabricated, is freed from physical restrictions. Such action is insistent, but no longer "live." At R/Greenberg Associates, the traditional boundaries between art and technology, between reality and artifice, continue to disappear. As this happens, the company redefines the nature of communication and reexamines the relationship between the machines and the humans who operate them.



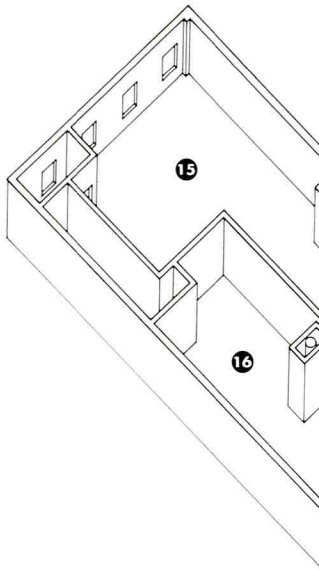
Walter Gropius designed the "Masters' houses" at the Dessau Bauhaus — the seven units were single residences completed in 1926 and unfortunately destroyed during World War II. The Greenbergs' headquarters, a 1985 remodeling of a former truck terminal on Manhattan's 39th Street, reflects their fascination with the architectural teachings of the Bauhaus.





Executive producers' offices, a staff meeting, and R/GA's administrative area seen from the mezzanine.

FACILITIES



In 1985 R/Greenberg Associates moved to its current Bauhaus-inspired facility. Unlike the neighboring high-rise warehouses, this building hugs the ground — clean, white, implacable — protected from the street by an iron gate. Originally a trucking terminal, the building was renovated by the architect David W. Roth to serve as a complete production facility. In fact, the company's nine departments are all under one roof, allowing R/Greenberg Associates to execute a project in-house from pre- to post-production.

On the main floor, a 3,800 square foot special-effects stage is surrounded by areas for live-action production, design, animation, darkrooms, editorial, computer-generated graphics, opticals, film processing and a 35mm screening room. Administrative offices are clustered on the main floor and on the mezzanine. On the lower level there's a technical systems area where carpenters and technicians design and build many of the props and models used in shoots.

The company's nearly two dozen in-house computers carry information via fiber optics, telephone lines and modems, which communicate with one another via serial interfaces, and are tied together with a custom-made UNIX® software system. Both of the robotic computer camera systems in the motion-control department, for example, speak to the SUN network in the computer graphics imagery area. This data link insures a consistent information flow among all the various departments, from motion control and computer-graphics imagery to opticals and animation. Indeed, three motion-control systems, two computerized animation stands, and three computerized optical printers are all hooked into the computer-graphic system, which develops and runs the company's software.

Main Floor

1. Special Effects Stage
2. Producers/Administration
3. Design/Production
4. Animation/Production
5. Darkrooms
6. Editorial Suites
7. Computer-Generated Imaging
8. Digital Video Opticals/ Engineering

35mm Screening Room

Mezzanine

10. Production Accounting
11. Conference Rooms

Lower Level

12. Prop Design and Construction

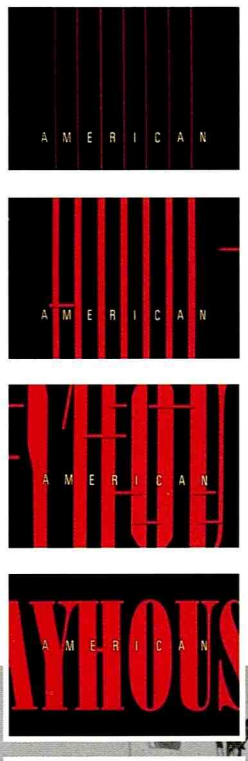
2nd Floor

13. Live Action Production
14. Opticals

3rd Floor

15. Insert Stage
16. Future Expansion

DESIGN



American Playhouse ®
1987

Every project at R/Greenberg Associates requires a different degree of creative involvement. Some advertising companies come in with a concept already in hand; others are open to suggestion. Some film producers present specific scenes for title designs, others have no preconceptions, thus allowing R/GA to create its own memorable title designs (as they have done for such films as *The Untouchables* [1987], *Alien*, and *The World According to Garp*).

"In designing titles, you want to make people forget the rest of their lives and embrace the film," says Chris Woods. To accomplish this aim, to draw the audience in, the company often sets up a veiled abstraction, revealing only a hint of a movie's content. "It is better *almost* to show the monster than to show the monster." The titles of the film *The Untouchables*,

for example, announced the movie's imminent plot of intrigue and danger through the use of greatly elongated shadows that move on the diagonal across a sepia tinted background. To create the shadows, a slit-scan effect was executed on an animation stand. (A slit-scan effect is a film technique in which artwork — generally a photograph — is inscribed with a slit and scanned over another piece of artwork.) The film itself was shot with an anamorphic lens. (An anamorphic lens is designed to squeeze a wide image into a standard frame through distortion during photography. The image is then opened out with a similar lens during projection.)

To capture the mystery and impending menace of the movie *Alien*, R/GA's title emerged gradually against a brown background that looked like the surface of the moon, but in fact was a layer of brownies. (As this instance shows, innovation need not be expensive.) Appearing first as small white blocks in the upper part of the frame, the letters slowly turn to spell the name of the film. In direct contrast to the diminutive size of this typography, the titles for the movie *Altered States* (1980) dominated the design. Here, to anticipate the frenetic, unpredictable course of the movie's plot, director Richard Greenberg chose letters that extended beyond the frame, overlapping and intersecting, while actor William Hurt's head hovered in the background. To create this effect, the opticals department matted film shot on a graphic animation camera stand with live-action footage. (A matte is a masking device placed in front of a camera or printer lens in order to block out or tone down part of an image.) In the title for *American Playhouse* typography acted as a dramatic force, provoking curiosity, eliciting interest, and finally providing a denouement, a reason for the design. Abstract horizontal and vertical bars — isolated elements of each letter — crossed over the frame, then snapped into place forming the letters of the title. Created with traveling mattes (moving silhouettes composed of high contrast film stock never seen in the final product), the title achieved the wholeness of a narrative tale.

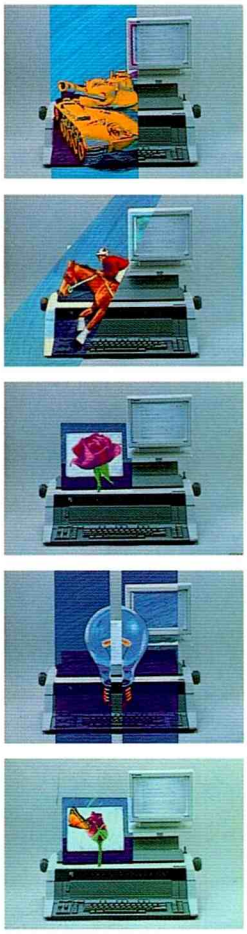
Alien
Twentieth Century Fox, 1979

Altered States
Warner Bros. Inc., 1980

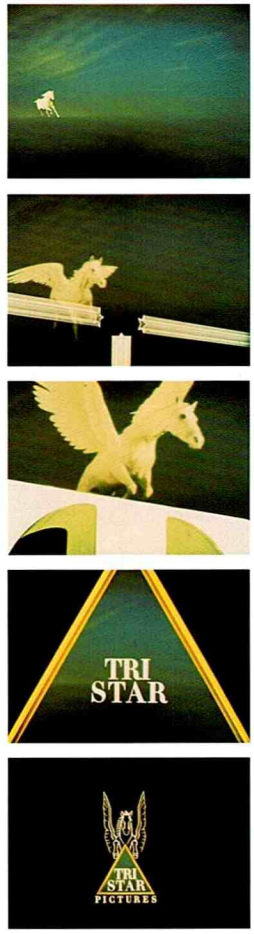
The Untouchables
Paramount, 1987

Color shots are selected on a light table and storyboards are assembled in the design studios at R/Greenberg Associates.

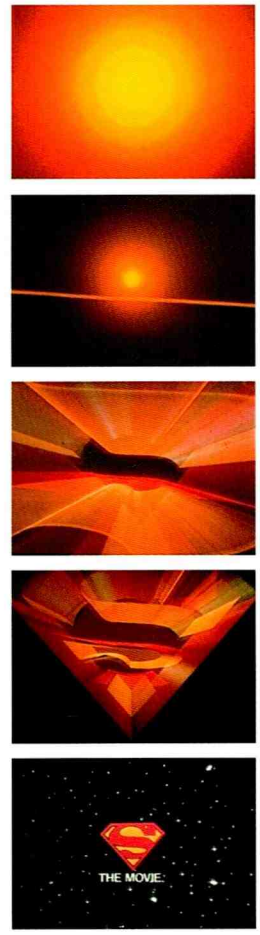
ANIMATION



Canon
Grey Advertising, 1989



Tri-Star Pictures logo
Tri-Star Pictures, 1983



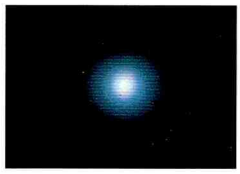
Superman
Warner Bros. Inc., 1978

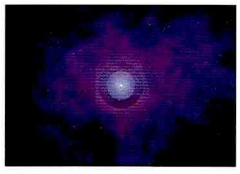
At R/Greenberg Associates there are many ways of producing animation. Cel animation, computer graphics, opticals, paint box, even stop-motion models and claymation on the stage are all capable of creating animation. In its most specific application, however, animation at R/GA is used to describe graphic animation.

Graphic animation incorporates type, photography, and abstract designs that are transferred to Kodaliths, a high-contrast Kodak film. These Kodaliths are then placed on a light box where light is pumped through them and a gel is added should color be desired. Multiple passes are then used to add reflection or detail. Graphic animation is not new; Cel animation, in which inanimate objects or individual drawings are photographed frame by frame, with each frame differing minutely from its predecessor, has been available throughout the history of filmmaking. But it is the computer that has radically altered the look of graphic animation. By mounting a computer on an animation stand, hundreds of intricately minute moves can be programmed. The streaking titles of the film *Superman* (1978), for example, were made before the Oxberry computer was programmed to produce streaks; eleven years ago when Richard Greenberg directed its title sequence, every frame had to be set by hand and run with a timer while the camera's shutter remained open. Today, streaking letters that evoke high-speed motion are a familiar sight.

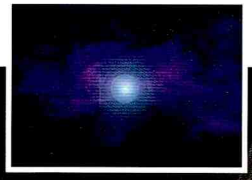
Animation is often combined with live-action footage, as in the 1989 Canon commercial. Small screens panned across a stationary typewriter. Each screen contained a different image: an animated horse and rider, a light bulb, a flower. To create this mix of imagery, a technique known as rotoscoping was used. (Rotoscoping is a film process in which exposed footage is put on an animation stand and traced.) Live action and animation were also combined in the Tri-Star logo to create the effect of a winged horse galloping over the company logo; in opticals, footage of a real horse was combined with footage of animated wings.

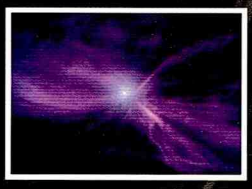
A cameraman shoots images on the Oxberry animation stand.





NOVA/
WGBH Boston, 1988



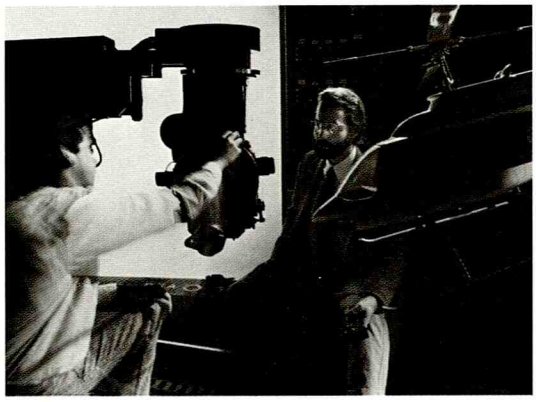


An animation director programs a shoot on the interactive motion-control computer.

MOTION CONTROL

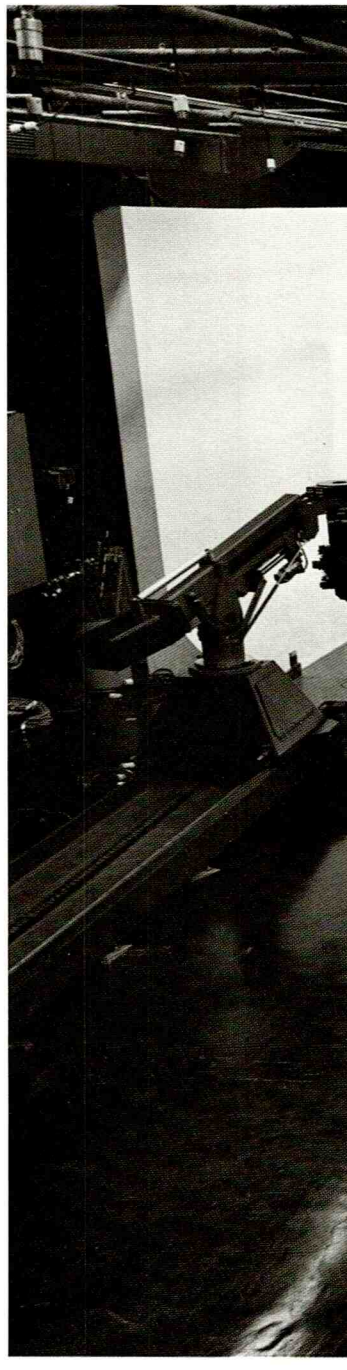
R/Greenberg Associates has an in-house motion-control system on its sound stage; this system consists of a robotic armature mounted on a pedestal and attached to forty feet of track. In addition, the company has a separate motion-control system that travels on location. The movements of that rig, precisely controlled by a computer, can later be duplicated on the stage with a model in a different environment.

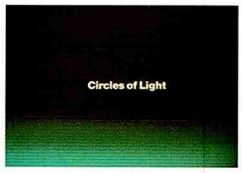
For a Bell Atlantic commercial, circles of light appeared to surround a city, intended to symbolize a fiber optic network. The model — a cluster of buildings — was first filmed without a rig, then a black rig with a light attached to the bottom was suspended over the model and rotated, achieving the effect of circles of light slowly rising above the city.



A director and a cameraman prepare to shoot a model helicopter for a television commercial.

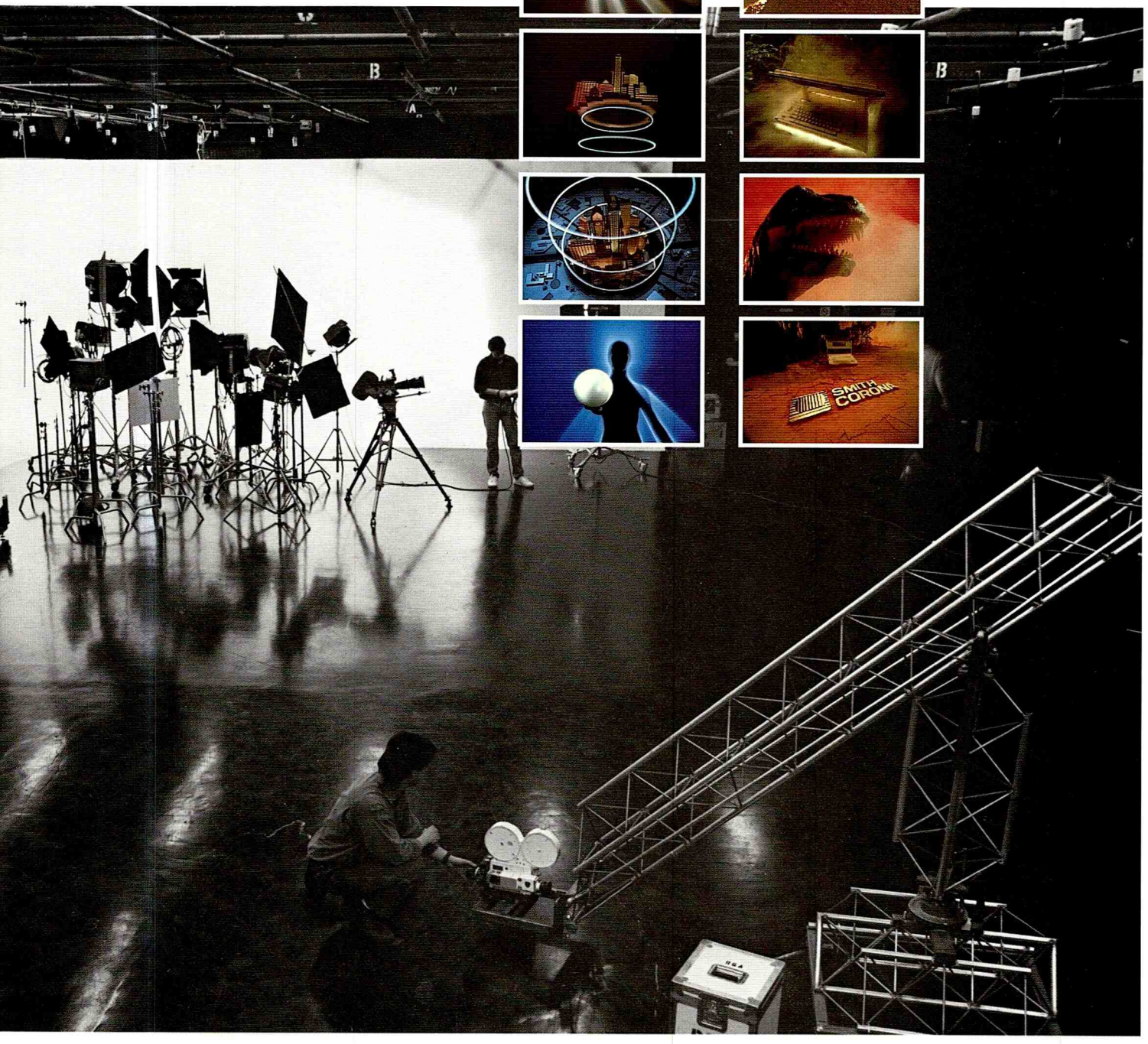
In an overview of the insert stage the motion-control camera shoots against a white cyclorama.





Bell Atlantic
Ketchum Advertising, 1986

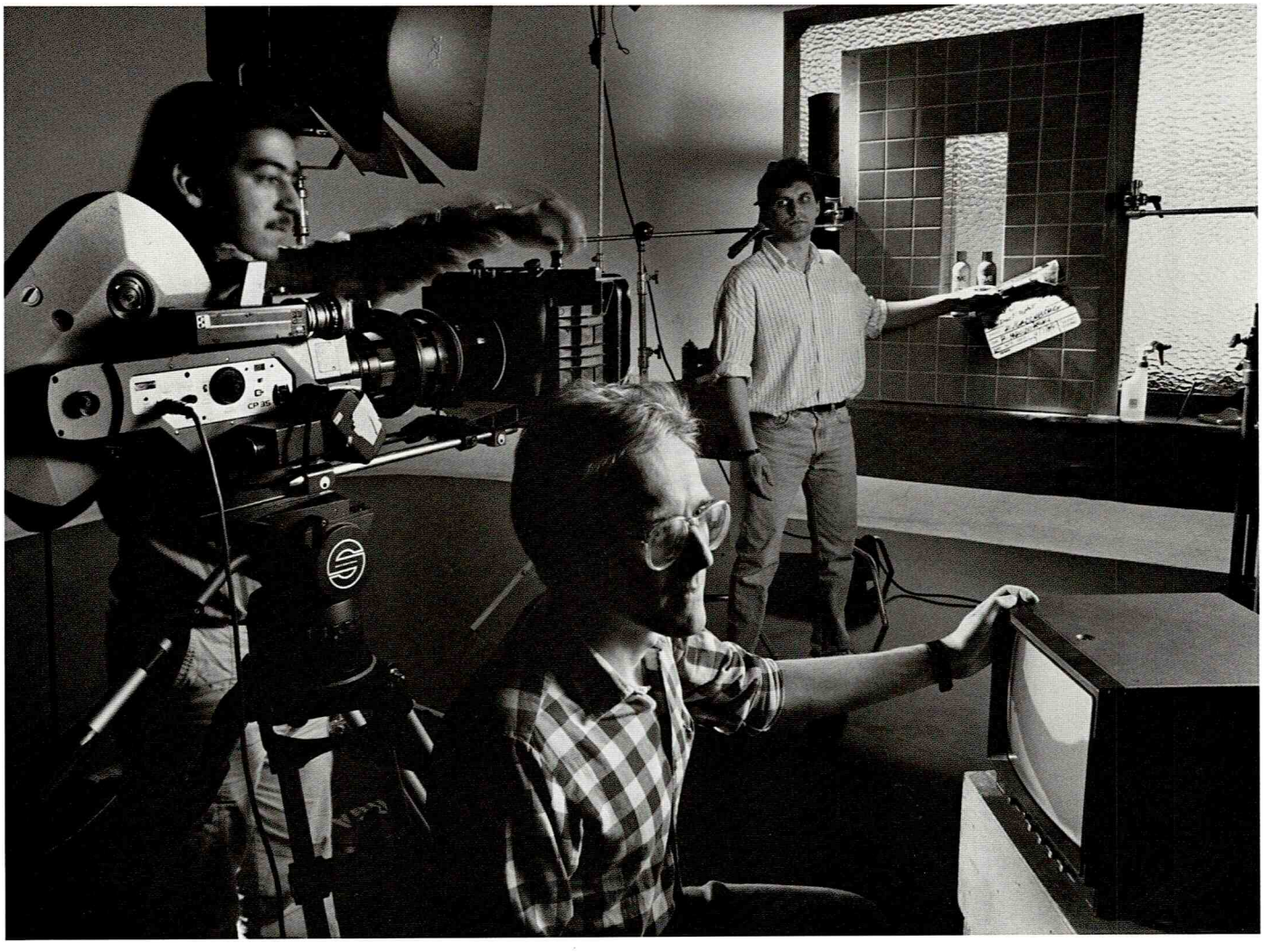
Smith-Corona
Rosenfeld, Sirowitz,
Humphrey & Strauss, 1987

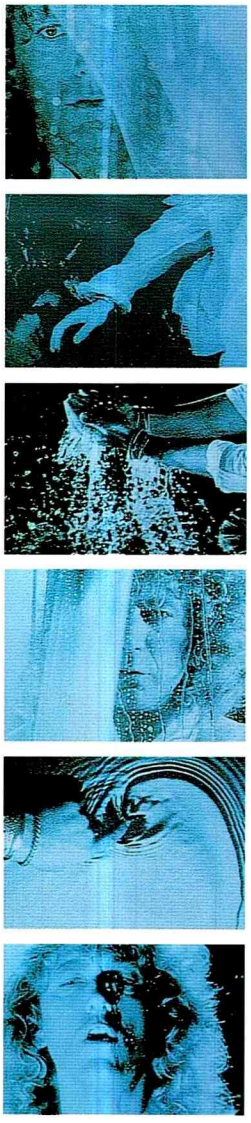


LIVE ACTION

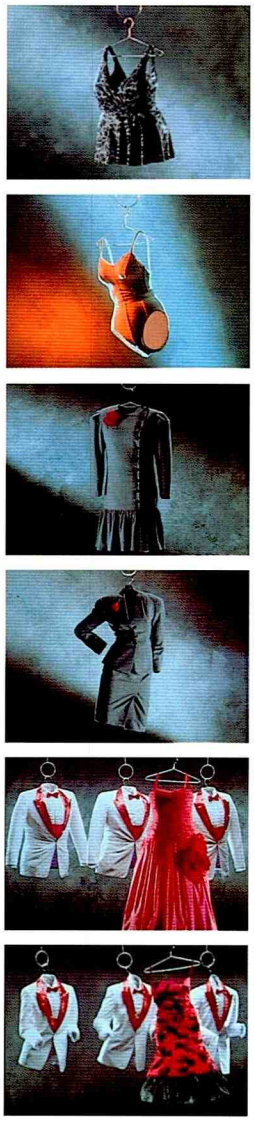
Although known for its special visual effects, R/Greenberg Associates also shoots a great deal of live action. In a Coors commercial, footage of dancers was combined with animated paint effects. For the 1988 music video of Robert Plant, footage of the singer, seen behind a rippled glass, was combined with high-speed underwater photography of water bubbles in digital post. In a commercial for Weight Watchers, no person appeared; only clothes danced in the air. But to create the animated clothing, hollow fiberglass casts were made by following a real person's body. The casts were put inside clothing rigged with pulleys and rods. Puppeteers located behind the casts twisted the forms and the armatures were later removed in digital post.

Live action shoots for various television commercials involve remote-control and motion-control cameras.

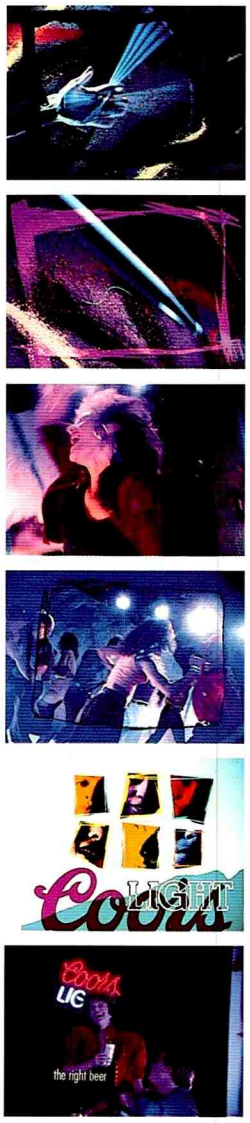




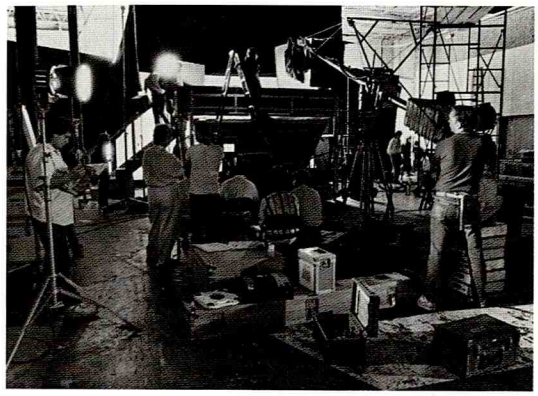
Robert Plant music video
Atlantic Recording Corporation, 1988

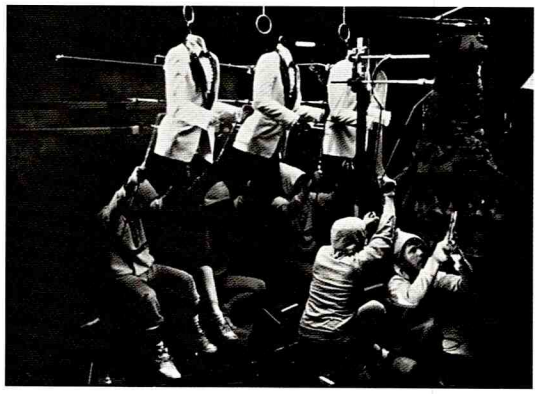


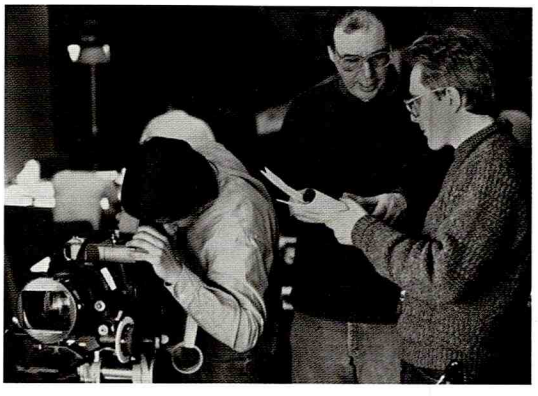
Weight Watchers ®
DDB Needham Worldwide, Inc., 1988

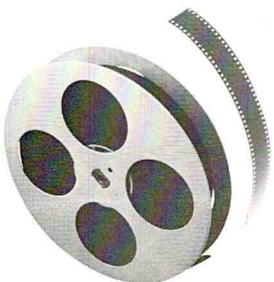


Coors
FCB/Leber Katz Partners, 1988









TECHNICAL SYSTEMS

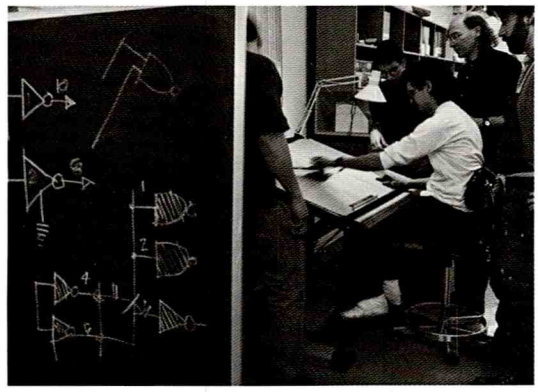
The technicians in this department build and rig models, as well as maintain the company's motion-control system. They also paint props, build furniture, and construct sets.

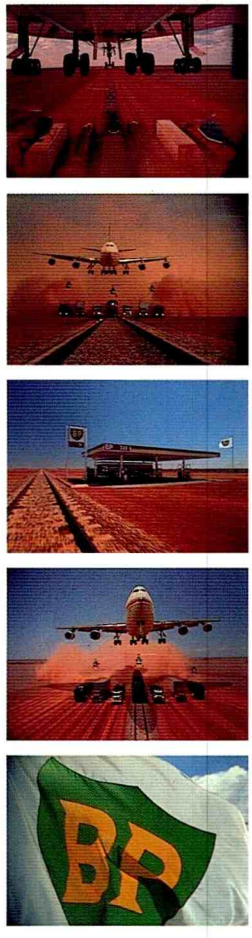
For a 1985 Timex commercial (the "Big Watch campaign") R/GA's staff created a variety of props designed to exaggerate the scale of the watches. Using a "blue screen" matting technique, each object is photographed separately and then collaged together. For example, in the joggers sequence a New Jersey hillside was bulldozed into the shape of the edge of a watch; the runners were photographed on the hillside and that imagery was then combined with the shot of the "giant" watch.

Modelmakers create props in-house for a variety of film and television projects.

The Greenbergs have often adapted new scientific developments to the filmmaking process. In the Timex series they used fiber optics and an endoscopic lens to light the watches. (An endoscopic lens [or borescope] is used to examine inaccessible parts of a jet engine.)

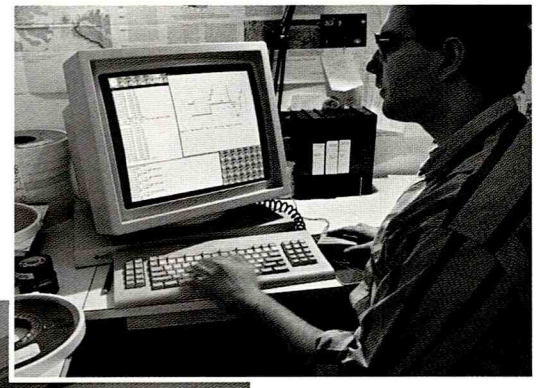
In a BP Oil, International commercial, trains, planes, trucks, and helicopters all converge on the same gas station. For this commercial, the technical systems department built both a model plane and a section of that plane, so that detail shots and special effects (such as putting plastic wrap around the base of the model to create a glistening surface) could be achieved.

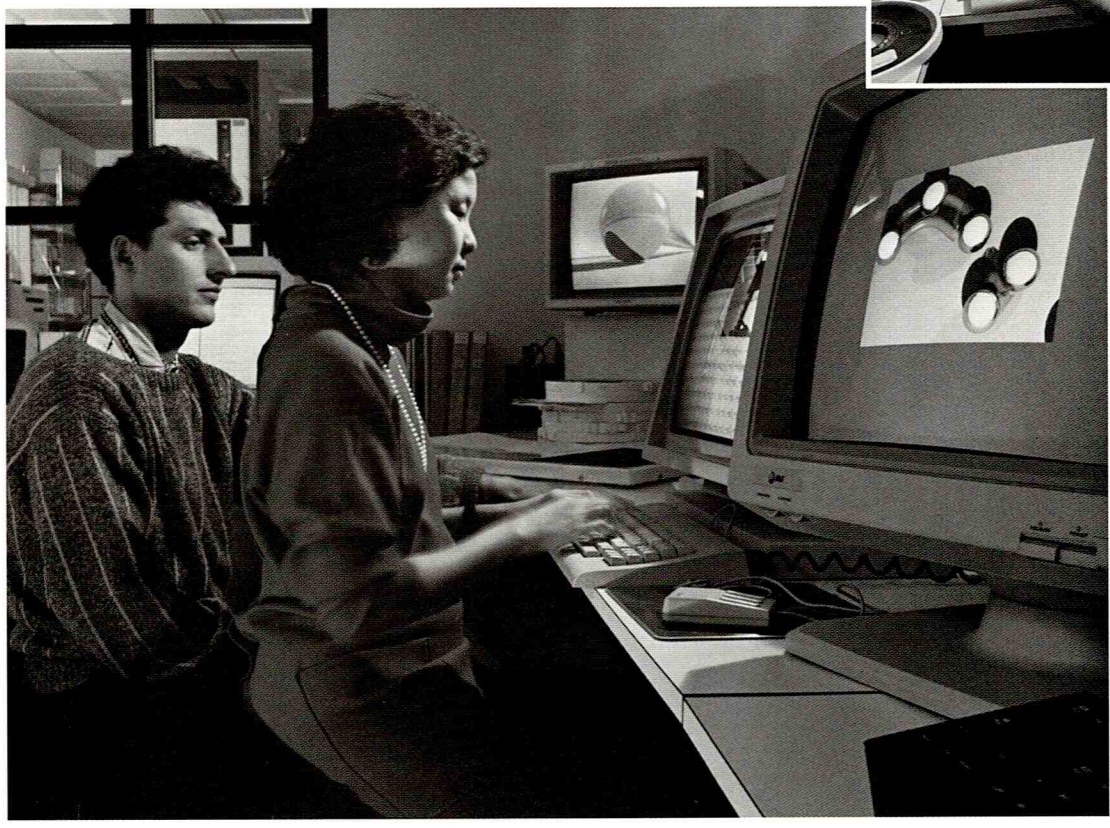




BP Oil, International
W.B. Doner & Company, 1988

Timex
Grey Advertising, 1985





R/GA directors write programs for computer-generated imagery on a SUN workstation, using AT&T Pixel and Pixar machines.

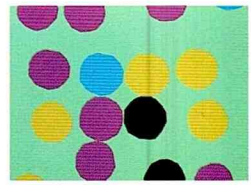
COMPUTER GENERATED IMAGERY

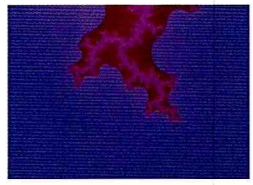
The role of computers at R/Greenberg Associates is pervasive. The computer-graphics department writes software for a variety of purposes: to control either of the two motion-control rigs (one in-house, the other on location); to direct the movement of animation stands; to run the optical printers.

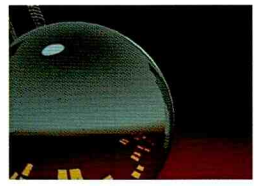
Computer graphics, the simulation of three-dimensional objects in motion, requires a mathematical data base composed of pixels. (A pixel, or "picture element" is the smallest individually accessible part of a computer graphic image.) To describe the role of pixels in computer graphics, Christopher Woods uses the metaphor of mosaics. "Imagine a cathedral in which you can touch a mosaic placed in the entryway. Viewed separately, each tessera presents only a small amount of information, be it color, patterning or shape, and each is a fairly coarse image. This array of mosaic pieces is analogous to a low resolution computer graphics image that's so coarse you can see the pixels, see the stairstepping, see the edges." (R/Greenberg Associates uses an anti-aliasing software program that can make a low-resolution image appear to be high resolution.)

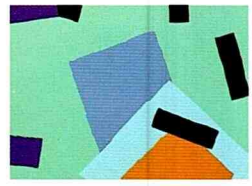
"However, when you look up at the mosaic on the cathedral ceiling, the effective resolution is so great that no single tessera can be distinguished, and the overall image comes across as beautifully complete and well rendered," Woods continues. "In the same way, computer images become high resolution at a certain critical size, when individual pixels can no longer be seen, and only a finely tuned image is apparent."

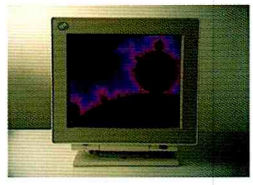
Pixels, arranged in a grid, serve as a window to the computer's simulated three-dimensional environment. Before that environment can be manipulated, however, it first must be created. With the integrated computer network at R/GA, designs created by the C.G.I. staff on computer graphics terminals can be incorporated into animation, live action, and motion control. An IBM commercial, for example, included a landscape generated from fractal geometry generated on a computer along with footage of Benoit Mandelbrot, the mathematician who invented this graphic system that investigates the order inherent in seemingly random natural events.

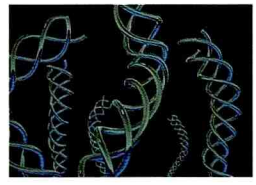


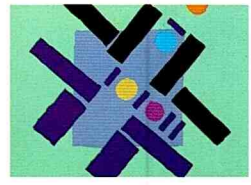


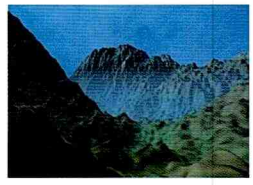


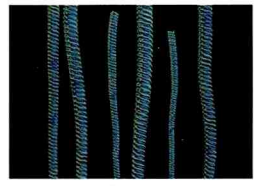


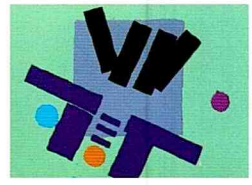


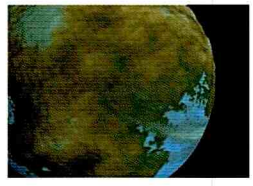


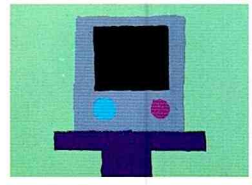


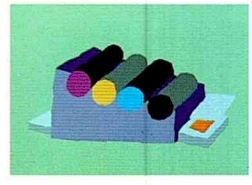












IBM
Lord, Geller, Federico, Einstein, Inc., 1982

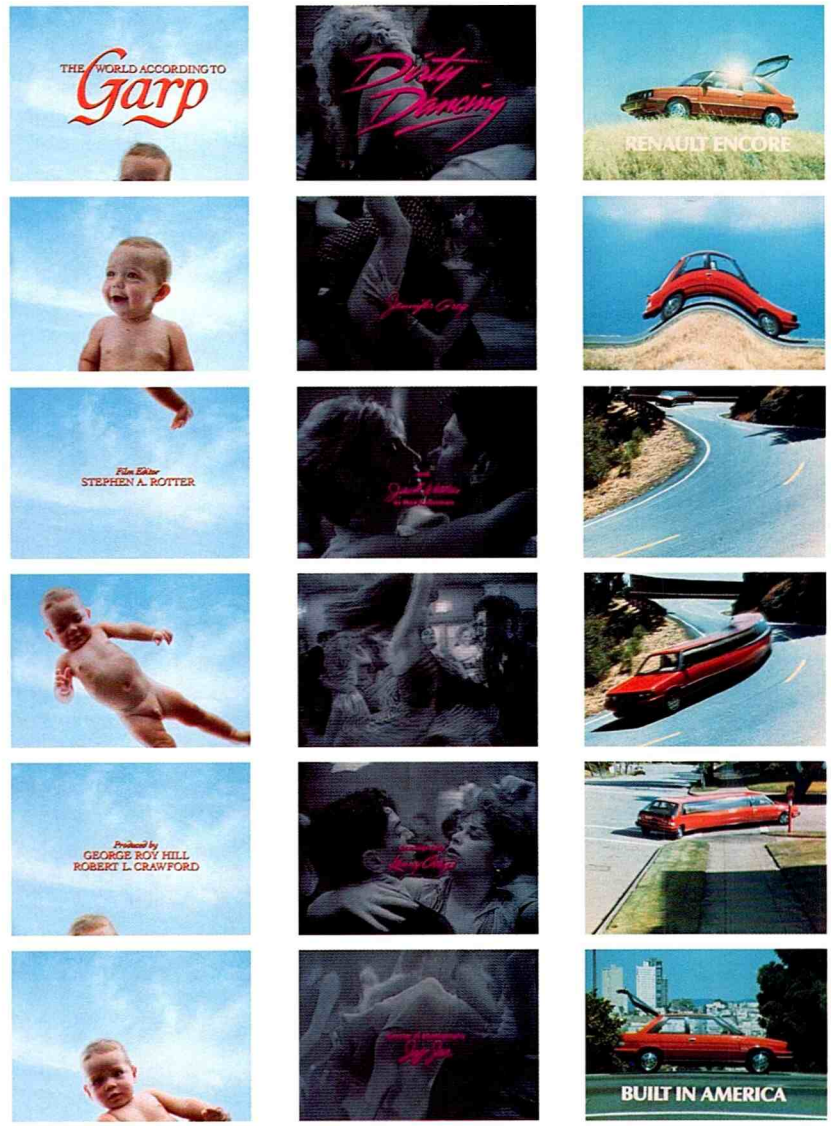
Bell Atlantic
Ketchum Advertising, 1986

Ameritech
J. Walter Thompson, 1988

OPTICALS

In this department, various film elements — most typically animation and live action — are combined on an optical printer. First film strips are superimposed, then mattes are pulled to block out certain areas. In a Renault commercial, the effect of a car bending around a corner was created using several variations of the slit-scan technique. Mattes of the actual car in motion were combined with mattes of the car shot at different speeds and under different light conditions. For the title of *The World According to Garp*, the baby was shot on a white screen, then matted together with a blue sky background.

For many years, opticals was the busiest department at R/Greenberg Associates, because all work, including commercials, was completed there. But in 1988 when the company added digital video post-production, the work done in opticals changed. Now the department concentrates on finishing feature films, titles, and teasers. Sometimes specific film footage is shot for these particular projects; at other times, outtakes from a film are used. In the opening title credits for the movie *Dirty Dancing* (1987), outtakes of film footage were intentionally abstracted; grain was added, color removed. Then in a process known as overlapping step printing, the footage was slowed down and dissolved, with frames intentionally skipped to induce a softened staccato movement. Finally, during the optical process, the footage was blown up and repositioned.

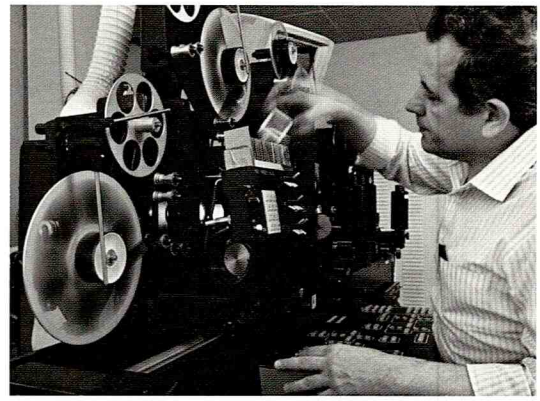


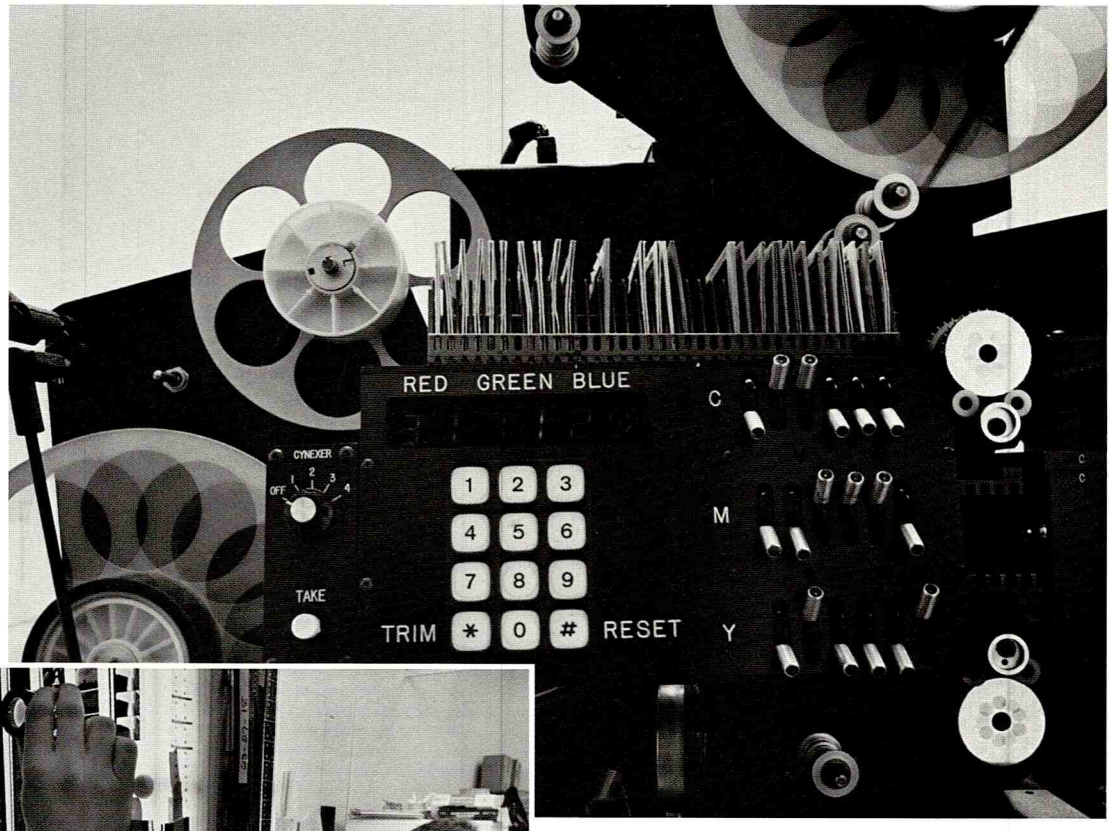
The World According to Garp
Warner Bros. Inc., 1982

Dirty Dancing
Vestron Pictures, 1987

Renault
Grey Advertising, 1982

A cameraman combines live-action footage with high-contrast film to create a single negative of the opening titles for a feature film.



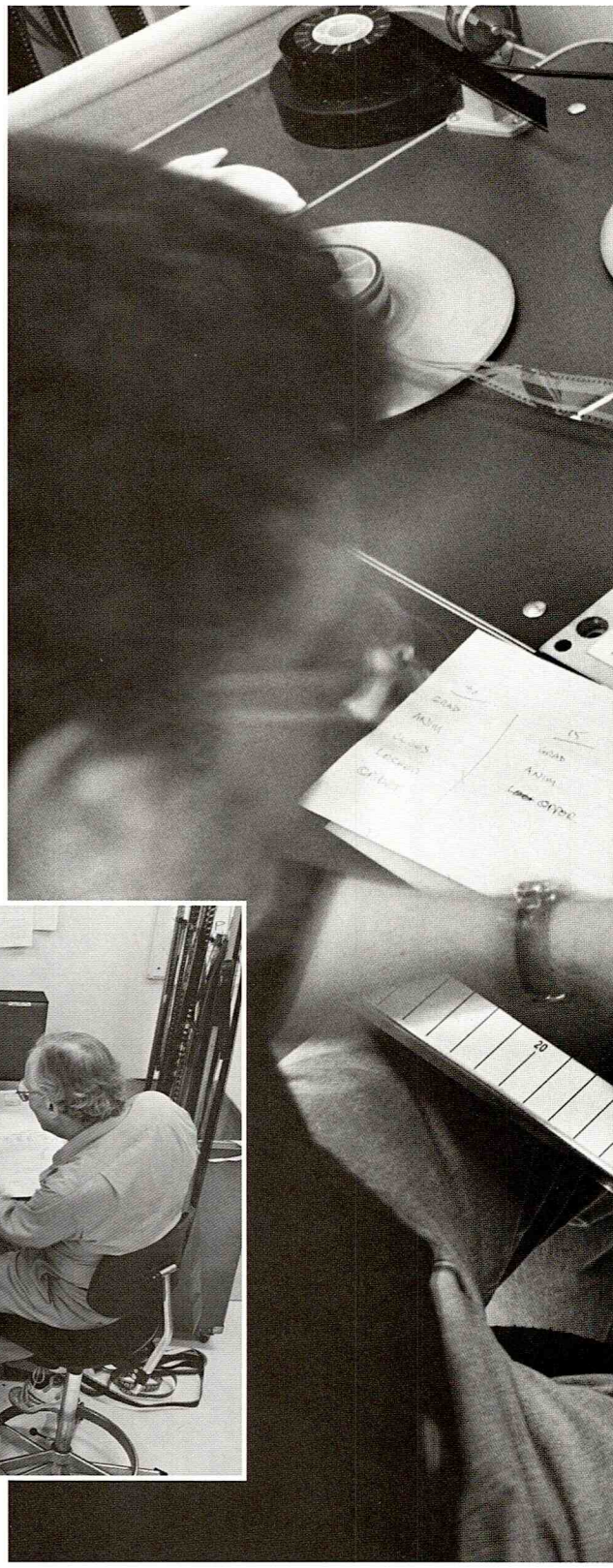


The optical printer's Modukrome color-correcting system seen close up.

Color balance between two scenes is carefully matched.

EDITORIAL

In addition to cutting dramatic footage, effects editors at R/Greenberg Associates also coordinate a wide variety of elements. In combining live-action footage with other departments, they must understand all the different technologies at R/GA. Editors have to be able to synchronize a number of elements — orchestrating how many frames for any one project will be shot live action, in animation, in opticals. As a result, they are often cutting up to ten rolls of film for a single project. Consulting with the director, they thus coordinate for either film finishing or digital video post-production.



Editors and producers review changes on the editing flat-bed.

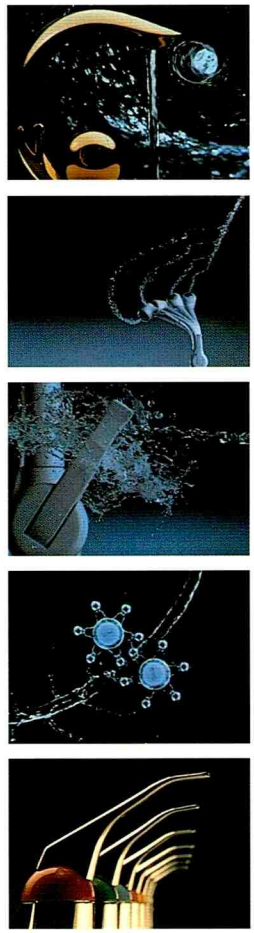

STEINBECK

DIGITAL VIDEO POST

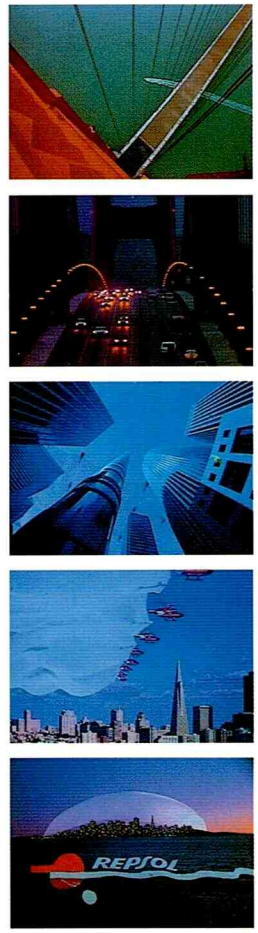
Since 1988, all work intended for broadcast is finished in digital post; any work to be projected on a large screen is finished in film opticals.

The new digital video opticals (DVO™) facility integrates film, video, and computer production, allowing R/GA to work with programmable, resolution-independent devices, providing the company with enough flexibility to accommodate change.

For a Kohler commercial, high-speed photography of Kohler faucets was combined with footage of splashes of water in digital video opticals. For a Repsol commercial, the streets of San Francisco appeared unpaved. In this extremely complex commercial, digital matting techniques produced a number of striking special effects; a huge steamroller laid out asphalt along a San Francisco street, while hundreds



Kohler
Grey Advertising, 1988



Repsol
Tiempo/BBDO Madrid, 1988

BP Oil, International
W.B. Doner & Company, 1988

of helicopters carried a plastic tarp over the city. For a BP Car Crusher commercial, digital video opticals combined mattes of a person with mattes of a car mysteriously crushing itself.

The Abekas control panel is the centerpiece of the environment on which digital video effects are developed.

SPECIAL VISUAL EFFECTS

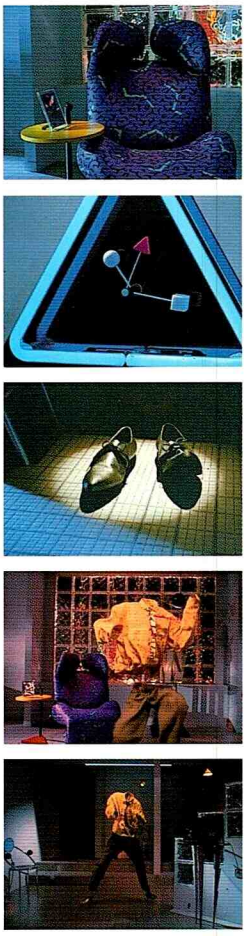
Oedipus Wrecks
(New York Stories)
Touchstone Pictures, 1989

Special visual effects can be divided into two basic types: those intended to appear natural and those designed to draw attention to themselves. In *Zelig* (1982), footage of Woody Allen and Mia Farrow was incorporated into archival footage. Woody Allen appeared on a podium behind Adolf Hitler, in a baseball field near Babe Ruth, and standing with Mia Farrow in Times Square. To create this effect, R/GA first located historical footage, then extrapolated where the original cameraman was standing, what the angle of view was, and how the focal length had been set. Then all those conditions were duplicated on stage with a blue screen behind them. Using blue screen separation methods, the new foreground was then matted into the background plates. However, because the archival footage was shot with an early camera and film, it flickered and was of poor quality. Thus it had to be steadied optically using a computer driven optical printer. Then the quality of the contemporary footage was intentionally degraded to match that of the historical footage. (Similarly, in *Oedipus Wrecks*, Woody Allen's segment of the 1989 film *New York Stories,* footage of a woman was combined with footage of the sky to create the sense of Woody Allen's Jewish mother floating above Manhattan.)

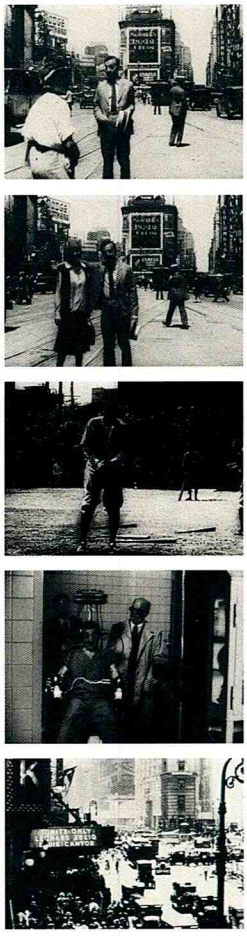
In the film *Predator* (1987) complex visual effects, supervised by Joel Hynek, succeeded in producing a monster seemingly made of glass. First a person dressed in a bright red costume was shot crashing through a green jungle. Separate silhouette mattes of the monster and the jungle were shot. Opticals then produced high-contrast traveling mattes of the monster; animation eliminated shadows. Then the corrected matte of the monster was put on an optical printer to make the monster appear composed of a series of concentric rings. The jungle background was then matted back into footage of the monster and altered slightly within each ring so that the background appeared to bend within the monster's silhouette and the monster itself seemed translucent.

For Grundig, a German manufacturer of stereo systems, R/Greenberg Associates created a whimsical

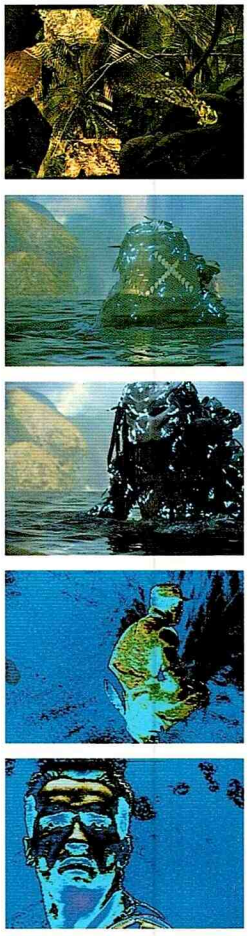
commercial in which a stereo set and a man's suit came alive when their human owner left the room. The stereo plug snaked its way into the wall outlet; the clothing formed a body and danced around the room; and a cigarette box kept the beat of the music. Just before the owner returned, the clothes zoomed back into place and the stereo turned off. A variety of special effects was used to create this commercial; stop animation for the self-propelling plug, special rigging for the tapping cigarette box, and an armature hidden inside the clothing and rigged by puppeteers.



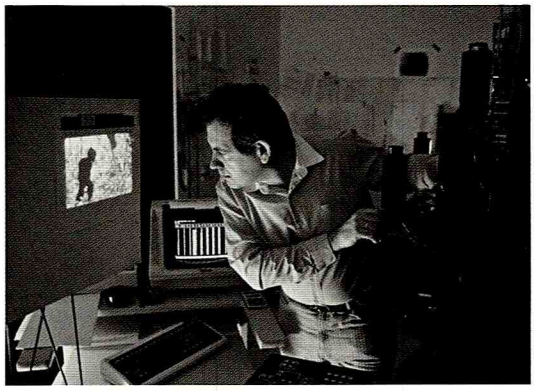
Grundig
Heye & Partner, Munich, 1986



Zelig
Orion Pictures Corporation, 1982



Predator
Twentieth Century Fox, 1987

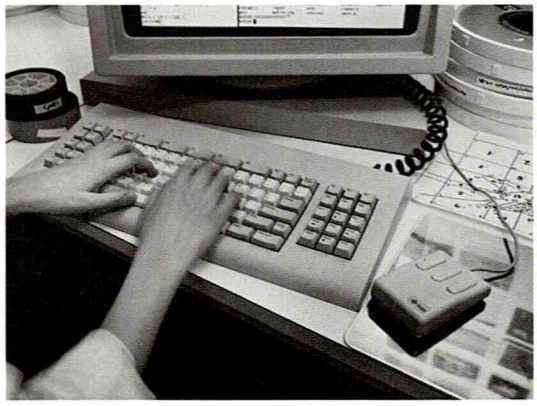


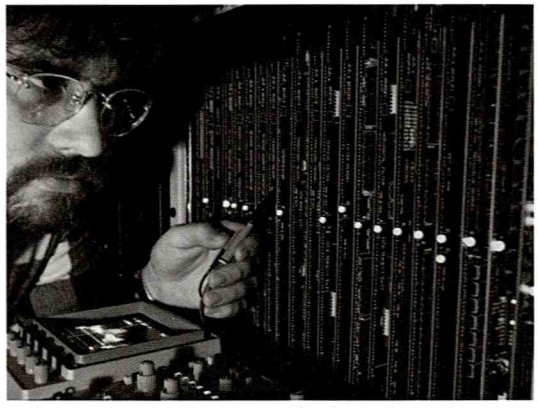
An optical cameraman aligns the "monster" matte against the registered background to create a special effect for the film Predator.

FUTURES

As the film, video, and computer design industries continue to merge at R/GA, moving back and forth from film to print or print to film will become a reality, since all images will be created, manipulated or combined in the same computer environment.

To keep pace with an ever evolving technology, the company engages in a process of "development and production," a variant on research and development that emphasizes invention and practical application. The adoption of digital video post-production, for example, made it possible to create commercials of excellent quality without the typical generation loss attributable to combination projects that use more than one method of production. "Soon that same digital technology will be available at film quality resolution," explains Robert Greenberg. "When that happens, the only condition that will differentiate working in feature film, broadcast, or print will be resolution. You'll only want to use the amount of resolution necessary for the medium you are working in. Right now, if you created a complex image in broadcast, you would not be able to transfer it to a high-resolution print image. You would have to re-create it separately. We are working toward that integration goal. Because people are inundated by so much information today we have to create images that cut through all the clutter. Technology will continue to develop, so we need to gain both flexibility and control."





The integrity of the Kaleidoscope equipment's color calibrating signals is verified by an engineer.

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