

L.A. SIGGRAPH

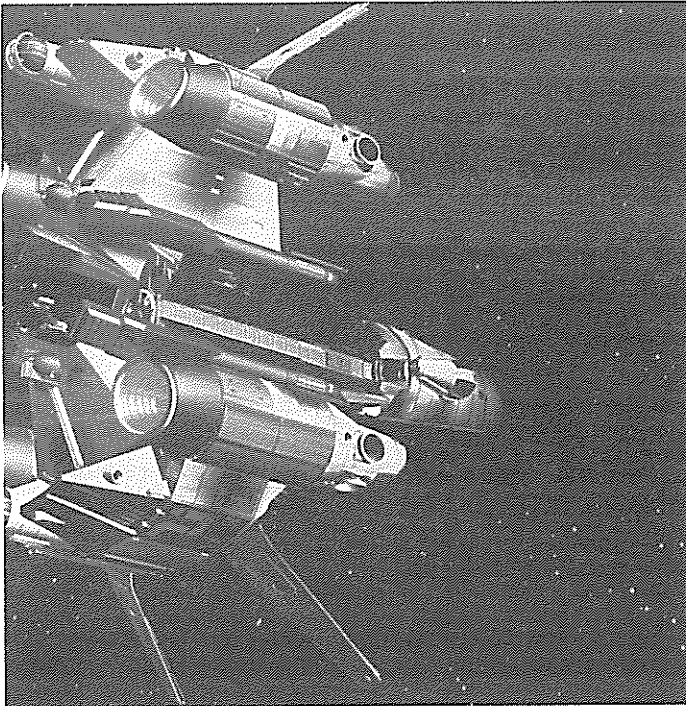
Los Angeles ACM / Special Interest Group on Computer GRAPHICS

APRIL 1985

Chairman - MOLLY MORGAN - (213) 546-5355
Vice-Chairman - DEREK LEE - (714) 752-5081
Secretary - ERNIE SASAKI - (818) 577-2643
Treasurer - ED KRAMER - (213) 392-4301
Editor - RANDY RANDALL - (213) 204-2250
Graphic Artist - MIKE AMRON - (213) 498-4059

P.O. Box 90698, Worldway Postal Center, Los Angeles, CA 90009

APRIL 9TH MEETING



Digital scene simulation [sm] by Digital Productions, Los Angeles. Calif. Copyright © 1984, all rights reserved

DIGITAL PRODUCTIONS

Our next meeting will be APRIL NINTH at UCLA. The location will be Moore Hall, room 100. UCLA is just east of the San Diego Freeway, between Wilshire Blvd. and Sunset Blvd. See map on page two. We will feature Larry Yaeger, assistant vice president of software development, from DIGITAL PRODUCTIONS of Los Angeles, creators of Digital Scene Simulationsm, computer generated moving imagery that simulates 3-dimensional objects and events realistically.

The techniques used by Digital Productions, unique in the computer graphics industry, are the result of over a decade of research and development by the company cofounders, John Whitney, Jr. and Gary Demos, recently the recipients of the Scientific & Engineering Award by the Academy of Motion Picture Arts and Sciences. A Cray X-MP supercomputer is used with proprietary software of enormous complexity. The resulting film images are so rich in detail (in some cases exceeding one million polygons per frame) that when intercut with live action, it is impossible to distinguish between c.g.i. and live original photography.

The goal of D.P. is to create what Whitney calls "mundane reality," the immediate, tangible, physical everyday world. The worlds created by Digital Productions for "The Last Star Fighter" and the Jupiter simulation for "2010" are certainly not everyday, but they do appear to be immediate and tangible.

In the case of the Jupiter simulations, actual raw still picture data from Jet Propulsion Laboratory was mapped onto a huge sphere "giving," what John Whitney, Jr. calls, "the feeling of perspective and curvature to enhance audience perception of the enormous size of the biggest planet in the solar system." Fluid dynamics software was used with wind current data to create realistic images of "the subtle swirling of the upper atmosphere clouds," says Whitney.

This promises to be a very interesting evening. Our social hour will begin at 6:30 pm, and the program starts at 7:30 pm. There will be a \$1.00 fee for members, and \$3.00 for non-members, payable at the door. Please bring correct change as we have a hard time making change for large bills.

MAY

The May meeting on the 14th, will find us once again at Caltech at 7:30 pm, for a program presented by Greg Passmore. Topics to be covered include image synthesis, software systems integration and hardware configurations which are best suited to image synthesis.

ANNOUNCEMENTS

* * * NO LOCAL CHAPTER MEETING IN JULY * * *

* * * NOMINATION OF OFFICERS * * *

* * * THE EDITOR HAS MOVED * * *

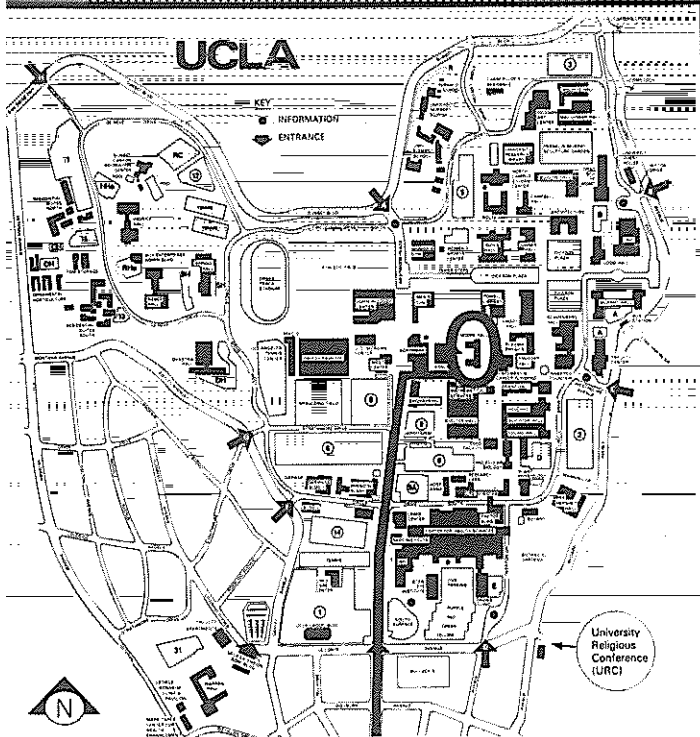
1985 has become the "Year of the Flood." My office was wiped out by a broken water main and I have moved to 9703 Washington Blvd., Culver City, CA 90232. The phones also drowned.

At the April meeting, we will be calling for nominations for LA SIGGRAPH officers to serve for the 1985-1986 term. Now is the time to come forward if you wish to contribute!

* NEXT EXECUTIVE COUNCIL MEETING, APRIL 16 *

In an emergency, you may leave a message at 157-204-2230. I am sorry for the inconvenience. I will be back in normal by next month.

Contact MOLLY MORGAN at (213) 320-5700 if you have something you wish to bring to the attention of the board. You would like to attend



* * NCGA CONFERENCE * APRIL 14-18, 1985 * * *
Dallas Convention Center, Dallas, Texas:

Information, and the advance Conference Brochure, are available for the NCGA's "Computer Graphics '85," Conference & Exposition. You may call (703) 698-9600 or write to the National Computer Graphics Association, P.O. Box 412, McLean, VA 22103. Registration Hotline: -800-543-8000, ask for operator #268.

* L.A. PROFESSIONAL VIDEO SHOW, MAY 21, 1985 *
Anahiem Convention Center, Anahiem, California:

This is one of the finest local exhibitions of industrial and broadcast video technology and products. If you have an interest in what is current in this field, don't miss this show.

* * SHOW BIZ EXPO '85 * JUNE 27-29, 1985 * * *
Santa Monica Civic Auditorium, Santa Monica:

Live Time Inc. is interested in presenting examples of computer graphics at this year's expanded computer exhibition for the entertainment industry. They also publish a catalogue of entertainment industry software. If you wish to be informed of exhibition details or software catalogue criteria, drop me a note.

* * * SIGGRAPH '85 * JULY 22-26, 1985 * * *
Moscone Center, San Francisco:

The entry deadline for the Film and Video Show is April 17, 1985.

A guide for participating artists and entry form is available from your local SIGGRAPH chapter. A SIGGRAPH '85 overview brochure should have reached you by now. It describes the exhibition, technical programs, panels, courses, art show and film and video show. The SIGGRAPH '85 Advance Program will also be mailed to ACM SIGGRAPH members. Non-members may use the coupon in the brochure to order a copy.

Volunteer information as well as hotel, carpooling and travel tips will appear in next month's newsletter. If you have ideas or information, write to me, address listed above.

For further information contact MOLLY MORGAN at (213) 320-5700, ERNIE SASAKI at (818) 577-2643 or inquire directly to ACM SIGGRAPH '85, Conference Services Office, 111 East Wacker Drive #600, Chicago, IL 60601, (312) 644-6610.

* * * REAL-TIME COMPUTER DANCE * * *

LA SIGGRAPH member Marci Javril and computer / video artist Ed Tannenbaum will give a live performance of music and dance, using a real-time interactive video system invented by Tannenbaum. They will be at the California Museum of Science & Industry, April 12. Contact PHILIP HIMBERG, Live Program Office, (213) 744-7516.

* * * GRAPHICS ADVERTISERS * * *

During 1984, computer graphics vendors ran over \$4.6 million in ads, distributed over 23 publications. The leading ad placement sector was software, with nearly 50%. Megatek placed 94 pages of ads, mostly in Computer Graphics World and Computer Aided Engineering. SAS Institute, a software publisher, placed over 100 pages concentrated in Computerworld. The largest advertiser was a PC graphics card manufacturer, Hercules, with 158 pages of ads.

Ads in the c.g. sector rose 20%, 12% less than the computer industry average. This divergence may indicate slowing growth of computer graphics or reliance on other forms of marketing. Ad rates vary from \$4,027 per color page in Electronic Imaging to \$2,275 in IEEE Computer Graphics and Applications. Others are Computer Graphics Today, \$3,150, and Computer Graphics

PAINT SYSTEM TOUR

In future issues of the LA SIGGRAPH newsletter, we will take a tour of an imaginary computer graphics paint system illustrated below. Each month we will feature a guest contributor from our LA SIGGRAPH membership. Specific pieces of the hardware system will be covered one month, while overall applications of the system may be the topic in the following issue.

One of our first articles, by Bob Young, will examine the system as a whole. Bob will discuss "CAD Systems, Top To Bottom." In addition to explaining what a CAD system must do, he will dig into the dynamic benefits. What new applications become possible as you move from one level of sophistication up to the next? What increased requirements in training or experience are placed on the operator? What performance benefits accrue?

Ed Kramer, will be doing a follow-up to his SIGGRAPH '85 Technical Program on NTSC Television Paint Systems.

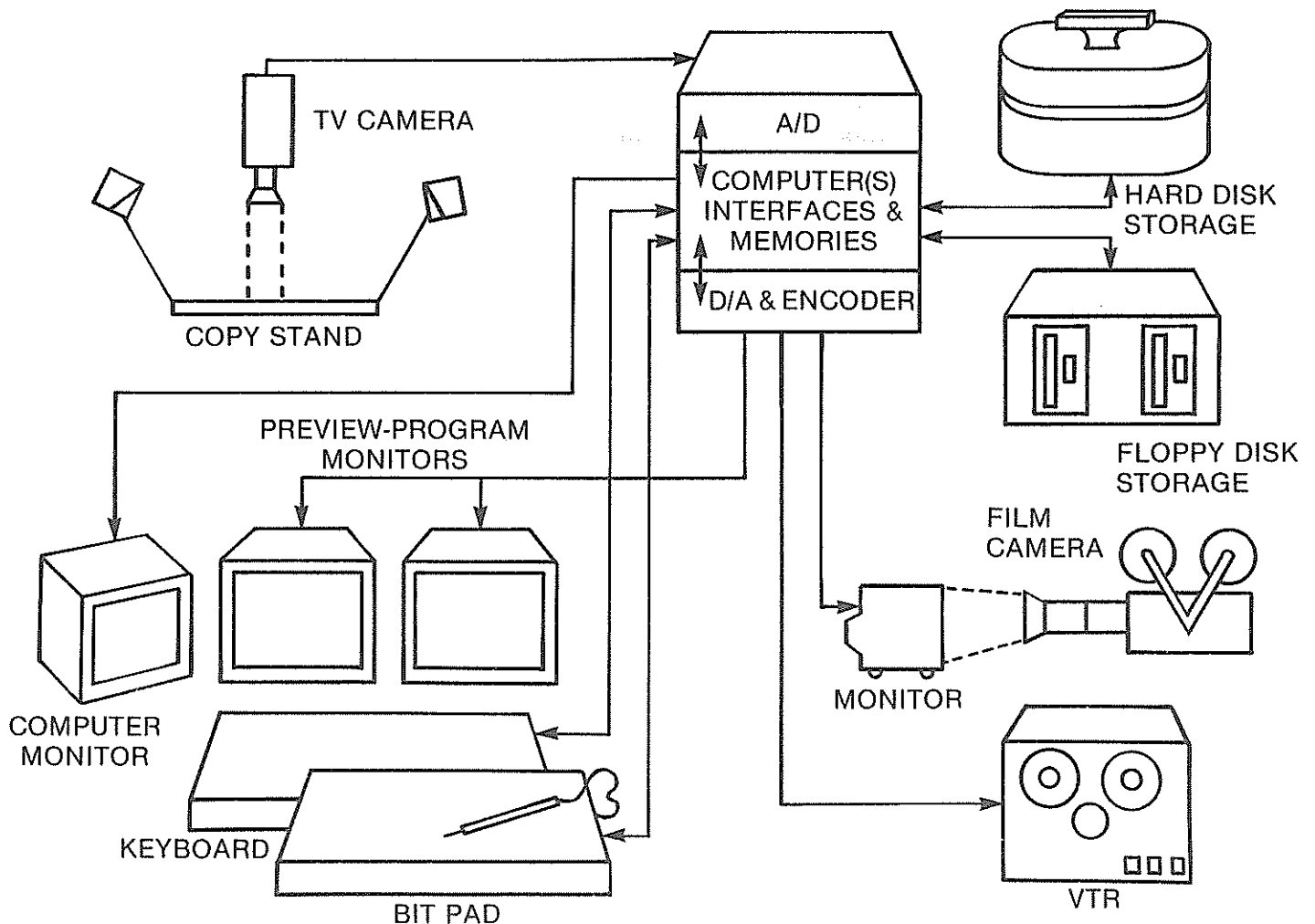
Ed is a Computer Animation Artist with many years of experience on network quality television animation systems. He worked most recently at Editel, Los Angeles, and has just moved to Editel, New York. We will miss him. Anyone who knows of a vacant apartment in N.Y., call Ed at Editel.

The CPU will be covered in an article on parallel processing and graphics VLSI chips.

Bit-pads, mice, A/D conversion and other input devices will be the focus one month.

A further update on advanced memory storage systems will be featured.

If you have an interest in any of these topics, or would like to contribute, write to the editor. For most subjects, we are still seeking material. Feel free to suggest other stops on the tour. It's your imaginary paint system, readers. Let's make it grow! RANDY RANDALL.



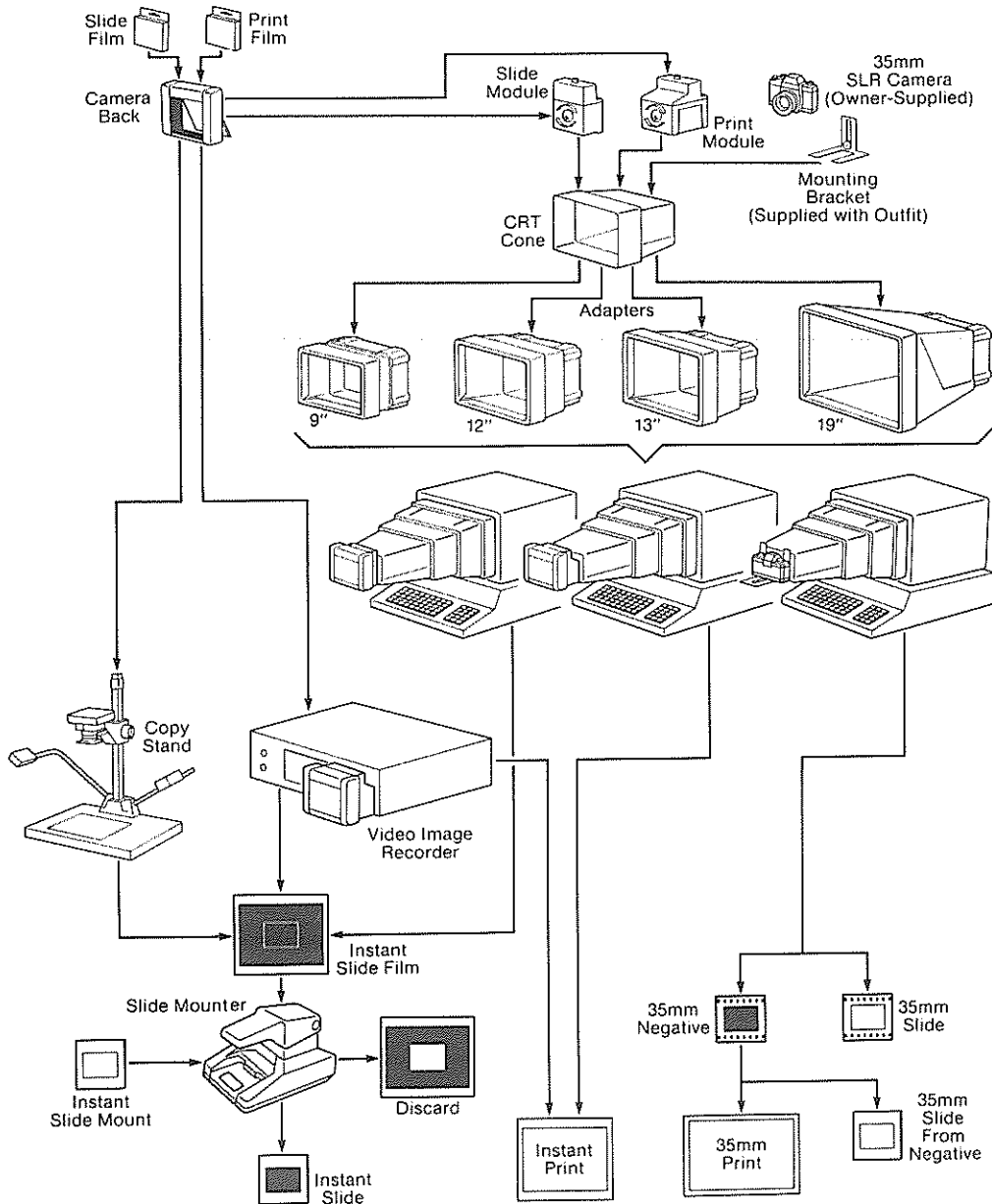
PAINT SYSTEM TOUR: FILM RECORDING

There are a variety of reasons why a film record, of a computer generated image, may be necessary or useful. Even a high quality, and expensive, laser printer can not compete with the image quality of a film recorder. If room size projection is required, film may be the media of choice due to the ubiquitous 35mm slide projector.

Three popular film recording options include:

1. Video Image Recorders (VIR). These devices accept color input, converting it, in hardware, to three consecutive black & white images,

which are photographed thru sharp cut-off color filters onto color film. The same technique has been used for decades in the motion picture industry. It must be remembered that film does not "see" color the same as the human eye. Color dyes in the VIR filters, unlike phosphors in a color monitor, are precisely matched to the color characteristics of film recording dyes. The specialized black & white CRT also produces greater resolution and image quality than a typical black & white or color monitor. Use of a flat CRT also avoids the convex bowing present in a normal monitor. These devices also incorporate electronics to control barrel, pincushion and other distortions.



FILM RECORDING CONTINUED

2. 35mm Still Camera Recording. The most common method of capturing a c.g. image onto film is a camera pointed at a monitor. The results of this technique can be improved by following a few guidelines. Use a hood or shoot in total darkness. Even if no light is falling on the screen, any ambient light will reduce the contrast of the film image. Since the eye uses contrast to evaluate apparent resolution, a low contrast image will appear less sharp. This is often used in motion pictures by post-flashing a negative with controlled white light to give a de-saturated look or to improve harsh lighting conditions. Computer graphics recording, on the other hand, most often begs for full color, saturated images and maximum sharpness and contrast.

To minimize the effects of screen curviture, a telephoto lens, e.g. 100mm, should be used. Further, if you have a flat field copy lens (most bellows and some macros), that is the best. If, however, your tele lens is a "cheapo," stick with the high quality normal lens.

To avoid distortion or keystoneing, be very careful to center the camera in front of the monitor. Use a tape measure and remember to level the monitor. Many monitors, even when sitting flat, have a slight upward tilt.

Shoot at an f-stop of 5.6 or 8. This is most often the sharpest range on any lens, regardless of price. No lens is as sharp wide open as it is stopped down to its mid-range. An f-stop of 5.6 or 8 may also be necessary to keep the curved monitor face in focus from center to edge.

Control your exposure with the shutter speed. Expect to shoot at about 1/4 to 1/2 second and "bracket" your exposures with extra shots of longer and shorter duration than the expected "normal" exposure. Long exposures on film let you play a game called reciprocity. This produces a color shift and non-linear increases in exposure beyond a certain point, usually starting about 1/8 to 1 second, depending on the film. Film data sheets generally cover this problem in the fine print. It can be filtered, or forgotten if you are the carefree type.

Monitor set-up is also important. If you are using a color monitor, dial out all of the chroma or color. Adjust the image for the best range of grays with contrast and brightness, then dial the color back up to a pleasing level. Avoid bleeding or ghosts. An 8X magnifying lupe can be very useful. Put it right on the glass and examine the image. Color is subjective. However, color bars can help you get the maximum range of colors accurately displayed. If your monitor input is composite video, or is otherwise compatible with a VCR, you may playback a color bars tape for set-up purposes. A graphics data file which produces an image containing adjoining blocks of primary and secondary colors may also be used. I can provide you with more information or sources for tapes

3. Instant Film Recording. Kodak and Polaroid both have film products and tools for recording off a CRT. The flow-chart, graciously provided by Kodak, illustrates the many options available. The CRT Cones address some of the problems discussed above. The optics in these dedicated products are designed to minimize distortion. Everything in the diagram is available from Kodak, with the exception of the Video Image Recorder. These gadgets are available from third party suppliers, and will accept Kodak instant films. Polaroid also markets a similar product.

The newest film in the instant field is Kodak Instagraphic[™] slide film. Polaroid slides must be shot a whole roll at a time, before processing. Colors are also flat or dull when compared to regular film. Densitometry tests I have made with samples of this new Kodak product indicate a contrast range much closer to traditional slides than Polaroid. They look better, too, and can be intermixed with normal slides in an AV presentation.

You may also make individual exposures, just as you can with prints. A dark slide is provided, so you may switch films or stop shooting in mid-pack. This allows you to shoot just what you need, when you need it. It also makes it practical to shoot a test exposure, change the exposure or color and reshoot another slide on Instagraphic or traditional film.

Why use other films at all? Sharpness and price. Instagraphic slides are quite acceptable for AV presentations, records of important images, slide portfolios or many other uses. You would not want to use this medium for producing large prints for the display of artwork. Instant products use a diffusion chemical process. After migration thru three color dye layers, acuity can not equal films like Ektachrome or Kodachrome. Instagraphic film is also more expensive. If you are producing enough images, in one sitting, you may offset the expense and inconvenience of roll film and a trip to the processor.

If you require high quality slides, Kodak Instagraphic slides use the same dyes, and have the same speed sensitivity, as Kodak Ektachrome 64. Therefore, if these two films are used together, very predictable results can be expected. Good Shooting! RANDY RANDALL, 320 Wilshire Blvd., Suite B-3, Santa Monica, CA 90401.

* * * * *

Film recording will be covered in more detail at an upcoming meeting where Kodak will demonstrate its Instagraphic product line. For more information contact the local office of the Eastman Kodak Company, Motion Picture and A.V. Products Group. In Los Angeles, you may contact Don Adams at 6677 Santa Monica Blvd., Hollywood, CA 90038, (213) 464-6131.

THE LIBRARY

The following is a compilation of articles on computer graphics which have appeared recently in publications not specifically oriented towards computer graphics:

The February '85 issue of Art News devotes some attention to computer graphics as fine art. Museum directors and fine artists are quoted, and illustrations, including one by Philip Pearlstein, are included.

Videography, February '85, surveys two computer graphics companies with multiple offices: Editel (hello Ed) and Omnibus (hello Art).

The February '85 issue of Video Systems has a short article on computer graphics and a two-page spread of some of the latest imagery.

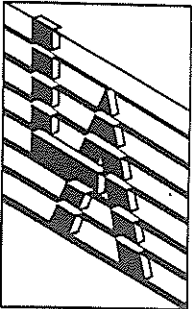
Newsweek has an article, in "Business," on west coast ad agencies in the March 4, 1985 issue. Robert Abel and Associates are featured. Their spot for the Canned Food Information Council is mentioned, along with an illustration of the robot used in the commercial.

Time, in the "Education" section of its March 11, 1985 issue, discusses four universities, including UCSD, which will be receiving Cray X-MP super-computers.

Computer graphic artists should also take note of a new use of the medium, comic books. First Comics, Inc. has introduced a new title, Shatter which is drawn entirely on the Macintosh. The premiere issue has already sold out. A second printing will soon be available from comic book specialty stores, such as Hi-De-Ho at 525 Santa Monica Blvd., Santa Monica. MIKE AMRON.



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