

Ylem

Ylem (Eye-lum): 1. The primordial stuff out of which the universe emerged. 2. An emerging group of artists who believe that science and art enhance each other and human understanding.



© 1983 Dave Archer

VOL 4 NO. 2

Depths of Time and Space

JULY 1984

About the Cover

Ylem Notes

by Trudy Myrrh Reagan

Dave Archer of San Rafael CA is a painter of truly awe-inspiring scenes of deep space in which he uses an innovative technique he calls "electric painting" which he developed over many years. It involves painting on the reverse side of glass (inside out and backwards) using conventional means (brush, airbrush, fingers) and then high-voltage electricity for special effects. This hand-held "lightning brush" is connected to a 2 megavolt Van deGraaf generator which produces an arc stream (corona ring) which is used to direct the paint on glass "using one naturally flowing element (electricity) to influence another (floating liquid paint)." His paintings may be seen at the Swanson Gallery in San Francisco and will be featured in an upcoming issue of OMNI. To the question "How did you get interested in space art?" he replied "I used to be a landscape painter. Somehow the sky kept getting deeper and darker and soon the earth just dropped away."



This newsletter is published bi-monthly and distributed to members of Ylem. Membership application is on page 7.

Ylem Newsletter

Trudy Myrrh Reagan, director
Mark Burstein, Editor
David Healy, art director

Ylem Officers

Trudy Myrrh Reagan, president
Loie Johnson, secretary
Robin Samelson, membership
Deanne Delbridge, programs
Tom Pressburger, treasurer
Shoshannah Dubiner, field trips
Louis Brill, "Yellow Pages"

Contributions are most welcome. Drawings, graphic pieces, photos; with explanation; submissions to "Opportunities", "Random Access", or "Calendar"; short book reviews or articles.

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The Joy of Data Manipulation

The sow's ear, our database, has been turned into a silk purse, the 1984-5 mailing list, by a member of the dBase user's group, Fred Reeves. Members should be receiving it soon. New features: the computer has been programmed to print out who lives close to whom, and to group people who work in similar media. We appreciate the many hours of donated time!

Moreover, with the computer we can easily satisfy our curiosity about how many people work in the respective media and also by location as shown on the following chart:

By Interest		By Location	
Computer art	25%	Sonoma	6%
Fine Arts	24%	Marin	2%
Design	16%	San Francisco	20%
Hitech & Mult Media	14%	East Bay	12%
Crafts	8%	Peninsula	30%
Writing	8%	South Bay	11%
Video, film	3%	Other CA	6%
Music	2%	Out of State	12%
		Foreign	1%

As you can see, Ylem is much more than "another computer artists' group". This is further reflected in the variety of people who will be running the show next year:

The New Ylem Board

President - Trudy Myrrh Reagan has been using science in her crafts and graphic work since 1968. By starting Ylem in 1981 she has found people with similar interests, and crannies in the art world where her work appears to fit.

Vice President - Bill Henderson is an architect and an aerospace engineer who returned to college to get an MFA in painting. He paints large airbrushed geometric abstractions suggestive of the beauty he discovered in advance technology in space craft design and as head of Lunar Base Planning at NASA Headquarters.

Treasurer - Mary Ann "Penny" Robertson has been interested in computer graphics since discovering it at the first Computer Faire. She now works at Cromemco as Software Resource Program Manager.

Membership and Public Information - Robin Samelson is a journalism graduate student and is collaborating on a series of video interviews with artists in science and technology. She now co-produces *Computer Hotline* for TV in San Jose.

Corresponding Secretary - Gunnar Timmonds likes to view the world from unique perspectives such as aerial, cutaway and stereo views. He is involved in printmaking, painting and photography, especially stereo photography.

Newsletter Editor - Mark Burstein is a writer, editor, and programmer who is also the Warden of the West Coast Chapter of the Lewis Carroll Society. He is unsure whether he is living in Marin County or a fractally-based digital simulation.

Art Director - David Healy is a graphic designer who has used a number of different computer systems for graphic applications. He anxiously awaits the day when a system for typesetting,

painting, designing, etc. is developed to be implanted in his brain with a built-in modem.

Hospitality - Lillian Quinke teaches design, lettering and Introduction to Graphic Arts and Computers at DeAnza College. She started and ran the crafts program for many years.

Field Trips - Shoshannah Dubiner is a graphic designer, costume designer and painter. She is currently designing a series of interactive computer-videodisc educational games that will be part of petroleum science and technology exhibit for Saudi Arabia.

Special Projects - Louis M. Brill; the founder of the Theatre of Performing Lights, is involved with the use of light as a kinetic and sculptural medium, designing "visual landscapes" for dance and theatre performances.

- Frank Dietrich has collaborated on a large scale video computer installation and has exhibited and published work throughout the U.S., Japan and Germany.

No More Low Profile!

An art show that reflects the diversity of Ylem art will have its first planning session at the studio of Jerome Kirk, August 12, 2pm, in Oakland (see *Calendar*). All are invited.

By Fall we expect to have two presentations that will convey the flavor of our group to gallery directors: One is the slide show of Ylem art being prepared for the October 13th forum, "Ylem Showcase". Your art should be represented! The deadline is August 15. See the *Opportunities* column for details.

The other show will be a videotape spinoff from a project of Robin Samelson for Channel 48. It will be a collection of 10-minute interviews about computer art shown on the program, "Personal Computer Hotline". We are also considering making a tape of other kinds of art using excerpts of tapes already available. Please let us know if there is a tape about your work by calling Robin at 415/856-0682.

Friends and Fascinations

Opportunities to display work is not all that Ylem offers, but occasions for making friends and sharing fascinations. On June 3rd, Eleanor Kent held a potluck for the artists in the show she curated, "Maestros de la Luz," which is touring Mexico. Many were Ylem members. A delightful videotape was shown of Eleanor explaining a paint system in Spanish on a "Manzana Ile". Over supper the artists bandied about blue-sky ideas, as well as some practical suggestions about how local artists can gain access to equipment.

Distant members, let us know how we can be useful to you. When you're in town, we'd like to hear about your work, either informally or a lecture situation. One of us may even be able to put you up. Write Ylem for info.

(continued on page 7)

Synopsis of "How Artists Use Mathematics"

Ylem Forum, June 2, 1984 San Francisco by Mark Burstein

Art and Mathematics are two themes which are the warp and woof underlying much of Ylem's activity and this month's meeting was a rich tapestry² of ideas and images. Some thirty-odd folks attended the meeting, which took place in the Haight-Ashbury Library, surrounded by the effluvia indigenous to such a tribe — artworks, sketches, milk-carton polygons, puzzles, books on geometry and patterns, and an Apple computer producing an endless series of mandala-like mosaics of colored light.

The first speaker was **Dan Cooper** on "*Landscapes from Sinewaves*". He had slides of a series of serigraphs designed by an interactive, dynamic computer program which produced b/w images which he then "froze" at aesthetically pleasing points and silkscreened, adding gentle gradations of color. The basic program produces sine waves, whose sensuous overlays produce textural effects which give rise to a series of abstract landscapes, seascapes, and cityscapes with the addition of color. This "poetry of calculus" produced snowfalls, forests, lakes, deserts, amusement parks, and sunsets. Birds magically appeared as outgrowths of the interactions and overlaps. Dan also brought a series of works based on some abstract geometrics of color-fields inside polygons, which were printed as a book *Being Yourself - 24 ways to See the Light*.

Sheila O'Hara "*Calculating Weaving Drafts*" is a most talented artist and very witty speaker whose tapestries (from 12"x16" miniatures to 9'x12' wall hangings) reflect an enormous artistic gift, much dedicated work, and a fine sense of whimsy. She brought us through the entire artistic process: slides of her inspirations (New Mexican balloon fests, the Brooklyn bridge, flowers, San Francisco in the fog, Escher, cats, freeways, landscapes "all those colors hiding out there"); the rough drafts;



"You Are Now Weaving Oakland" 48" x 92" wool weaving ©1981 Sheila O'Hara

threading and treadling sequences; the work itself (her loom with its rainbow of strings and piles of warp); and the finished results, exquisite in their artistry and humor. She is using a computer now to assist with the sequencing, and although she kept apologizing for the lack of mathematics in her work, those familiar with computer graphics could readily see analogies in her rough sketches on graph paper (essentially pixel maps) and the problems of weaving 256 colors in groups of 16. Aliasing, curve smoothing, creating transparency, and other common problems were recognizable. Her titles, such as "*Now Weaving Oakland*" (on this page) were very funny.

Martin Kahn "*Plotting and Inventing 3-D Forms with Calculus*" who works as a graphics programmer at Northstar shared some of his work with us. We viewed (on an Apple computer and via photos of his paintings and pages from his coloring book) how to create and manipulate shapes from 8 basic functions (linear, step, parabolic, cubic, exponential, logarithmic, sine, and

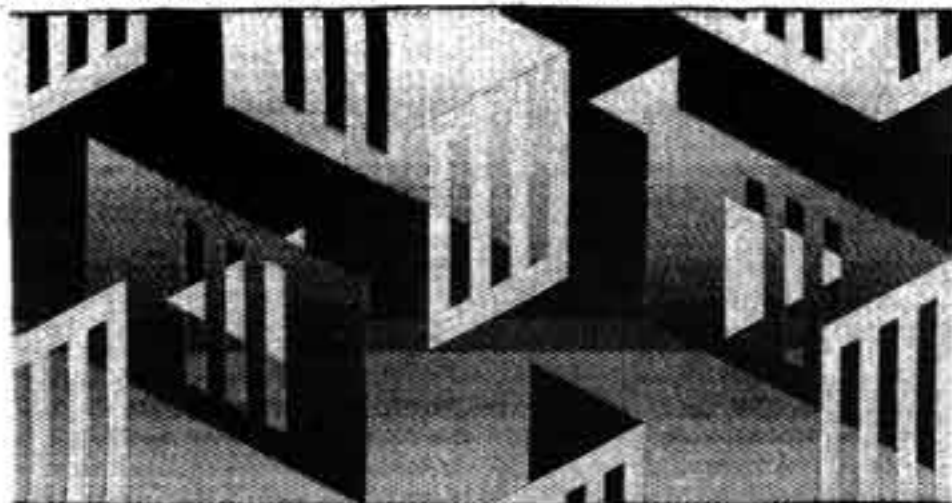
elliptical) and their multiples and additions. In combination with "color animation" (the illusion of movement through real-time changing patterns of color) the kaleidoscopic rainbow of surfaces showed explosions, rotations, and whirlpools. Scott Kim wanted to know if Martin's tie-dyed t-shirt could do the same. Martin also demonstrated his "Print Shop" software and stationery package which designs letterheads, signs, logos, and so on.

Frank Dietrich "*Vedic Numbers and Computer Patterns*" talked a bit about his life as a "Have Raster, Will Travel" graphics programmer from Germany to L.A. via Chicago, and then blew us away with some leading-edge computer graphics slides. His first set were some works by his students, whose images were made from combinations of graphic primitives. The work looked alternately like weavings, paintings, glassware, or airbrush, and included a spectacular fractally created image of a torus of twisted ropes. His brilliant commentary wove through the next sets of slides: digital video; tessellations and truncations, and on to Vedic numbers, which are "magic squares" of numbers with various properties (such as all rows and columns adding up to the same number) known since ancient times. These arrays were called by his imaging subroutines and their inherent harmony manifested in the picture. Depending on the resolution of the frame buffer and the rendering program, the results looked like wire sculptures, Navaho rugs, or spherical colored "blobs" in space, but their symmetrical structures were always discernable.

We left after a hands-on real-time demonstration of discrete liveware interface and synergistic networking (otherwise known as "meeting each other and talking").

¹I'm still writing under the influence of Sheila's talk on weaving. And yes, my dog and I did have a brief show-biz career under the name of "Warp and Woof".

²See note 1.



"Department 6" 48" x 96" wool and rayon weaving ©1980 Sheila O'Hara

A select group of computer experts will explore the issues and trends involved in the rapidly growing field of personal, "human scale" computing in a special microcomputer graphics panel at SIGGRAPH '84, the Eleventh Annual Conference on Computer Graphics and Interactive Techniques, scheduled for July 23-27 in Minneapolis, Minnesota.

The panel, which is chaired by Howard Pearlmuter from the Knoware Institute of Technology, will also discuss the latest and most popular hardware and software offerings. This is the first microcomputer panel ever held at a SIGGRAPH conference.

Planned activities include a variety of software demonstrations, to be displayed on multiple, extra-large video screens:

— Top Macintosh designers **Bill Atkinson** and **Susan Kare** will guide a tour of the MacPaint and Quickdraw software that runs on their phenomenally successful personal computer.

— **Charles Moore**, inventor of the FORTH computer programming language, will discuss his latest computer-aided design activities.

— **RJ Mical**, Director of Art & Animation Services at Amiga, and former coin-op videogame designer, will explore interactive, real-time animation.

— Award-winning programmer **Howard Pearlmuter** will show a sampling of Softweaver's bestselling graphic software.

— Stanford University's **Scott Kim**, who has been described by Isaac Asimov as "The Escher of the Alphabet", will conduct a visual exploration of low-resolution typography. Scott's "calligraphic cartwheels" have appeared in *Omni*, *Scientific American*, and *Hofstadter's Godel, Escher, Bach*, as well as in Kim's own *Inversions*.

"We're planning to end the session with the largest participatory video game in history," said Pearlmuter. Through custom electronics, sixty-four people will interact simultaneously on the same game. Pearlmuter said the event is called "Democracy n Action" and that participants will have to work together in teams to control the action on the giant video screens.

The video extravaganza is the latest in a long series of creative computer graphics events Pearlmuter has sponsored through the Knoware Institute of Technology. Knoware Tech has provided free, exchange, or low-cost personal learning tools and educational environments on an international basis since 1981.

The microcomputer graphics panel is scheduled from 3:45 to 6 pm. on Thursday, July 26. For more information or to arrange an interview, call Jodie Misch at the SIGGRAPH conference office (312) 644-6610

A new column of items in the news of interest to Ylem members. Contributions are welcome— send to the Ylem address or to me at 35 Edgewood Ave, Mill Valley CA 94941.

This issue: *Depths of Time and Space*

More on Ylem

source: *The Red Limit* by Timothy Ferris (Bantam)

thanks to: Trudy Reagan

The current use of the term *ylem* in physics as a hypothetical substance of an incredible density of 10^{18} Kg/m³ hearkens back to George Gamow whose paper in the 1948 issue of *Physical Review* (co-authored by the remarkably yclept Ralph Alpher and Hans Bethe-producing Alpher-Bethe-Gamow, the start of the Greek alphabet) proposed a model, based on the principles of fusion, of matter in the first few seconds of the universe as a "very dense over-heated neutron gas" which he called *ylem*.

The Last Starfighter

Source: *Millimeter*, June 1984

thanks to: Ralph Stapenhorst

Lorimar's "The Last Starfighter" coming soon to a theatre near you as they say is a video-game buff's fantasy come to life, and is of great interest to computer-graphics aficionados, as it represents the state-of-the-art in c/g today. This reviewer has not seen the film, so will not be concerned with plot, character, dialog, etc. It is a benchmark in the industry in that many of the moving visual images (21 minutes worth) were produced entirely on the computer without models, mattes, sets, and soon. "Sequences of interplanetary flight, exotic extraterrestrial landscapes, vast military installations, highspeed aerial pursuit through a labyrinth of tunnels within an asteroid and full-blown galactic war are all depicted with exhilarating fluid dynamisms, radiant color, sophisticated multiple illumination, extraordinary detail, and sensuous texture". The work of Digital Production's John Whitney Jr. & Gary Demos uses a process to mimic filmed reality called digital scene simulations (DSS). The scenes are built on a Cray X-MP, capable of one billion computations/second with sophisticated software which requires 2 Vax 11/782 front-end computers (by contrast, Lucasfilm has only one Vax and no Cray). Its artistic director is Ron Cobb (*Alien*, *Star Wars*, *Close Encounters*, etc). It is interesting that only scenes in outer space are now possible to produce, and that a realistic street scene is much more difficult and the depicting of humans capable of emotion (indistinguishable from film, remember) nearly impossible. For now,

Art in Space

Source: *New York Times*, March 4, 1984
thanks to: James Pridgeon

The missions in space should not be limited to scientists and astronauts, but rather could include poets and artists, according to a survey of 3000 people taken by Jim Pridgeon, a Seattle artist, and sent to NASA last year. Respondents to the project include Doris Lessing, Ken Kesey, Paul Winter, and Edwin Honig, who writes "Poets have always written about stars, moon, sky, sun, space. In a sense it's their property." Although some skepticism was reported, Jim is soliciting support for the project and can be reached at PO Box 95617 Seattle, WA 98145.

Space Music

Source: *Aviation Week & Space Technology*, February 27, 1984

This respected journal published a photo of astronaut mission specialist Ronald McNair playing jazz improvisations on a soprano saxophone in zero-g while floating around Challenger during shuttle Mission 10.

And Closer to Home...

source: *Science Digest*, April 1984
thanks to: Marsha Nygaard

The biggest artwork ever produced, a celestial lightshow involving the creation of artificial auroras to be seen throughout the world has been approved by NASA for the space shuttle, perhaps as early as this spring. Joe Davis, 33, a self-described shaman, showman, artist, and a fellow at the Center for Advanced Visual Studies at MIT, calls his project "New Wave Ruby Falls", although NASA refers to it by the more prosaic "Getaway Special 266A". He will be using a beam gun able to shoot electrons 37 miles and instruments to record and analyze data which will also reap scientific benefits relating to auroras, those mysterious natural phenomena whose typical display lasts 3 hours and generates about nine times the annual U.S. consumption of electrical energy. These displays will be seen as luminous streaks across the sky in areas in which they do not normally appear. His other projects include a 106' sculpture that changes the color of lightning bolts which hit it, and a inflatable "Skyhenge" in orbit.

Ylem Calendar

Thursday evenings, 6:30 pm

"Personal Computer Hotline," Channel 48, is co-produced by Ylem member Robin Samelson, and demonstrates new products. It is a live, call-in show: ask anything about personal computers.

July 18, 9:30 pm

"Steam Dreams", Civic Center Plaza near Polk St., a light show with rear projection screen and laser-scan show. Its "steam" is a nitrogen fog fountain. Live music and dance. Sponsored by Laser Affiliates, L.A.S.E.R., with Laser Ray Arts Productions Inc. Takes place during the Democratic Convention.



SIGGRAPH '84

July 23-7

SIGGRAPH '84, Minneapolis, MN.: "Special Interest Group, Graphics" Conference is a showcase for all the latest and greatest in computer graphics products and output. Info.: SIGGRAPH '84 Conference Office, 111 E. Wacker Dr., Chicago IL 60601. (see article page 4)

Frank Dietrich will take slides from people who do computer art and put them into a slide show called "Fortune Cookie" in SIGGRAPH tutorial #13 in Minneapolis. Send duplicates of slides with your name, title, and system. Send to 3477 South Court, Palo Alto, CA 94306.

July 26-8

Stanford Design Conference, Stanford Campus; also includes private reception at San Francisco Museum of Modern Art. Many aspects of design are discussed by the best minds in the business. Info.: Beverly Smith, Bowman Alumni House, Stanford Alumni Asso., Stanford, CA 94305, 415/497-2021.

July 28, 8:30 am - 5 pm

Rock Lover and Beachcomber's Delight, Ylem geology field trip to San Mateo Co. beaches starts at *Stanford Shopping Center* near the entrance, where car pools will form. Bring lunch, jacket, and sensible shoes! (All points of interest are less than 1 mile from car). Guide is geologist Clyde Spencer, \$10 includes field notes.

Info. and resv: Shoshana Dubiner, 1447 Cabrillo, San Francisco, CA 94118, 415/221-3595.

August 4, 11 am

Ylem Business Meeting, Tressider Union Lobby, at top of outdoor spiral stairs, Stanford Campus. Anyone interested may attend.



August 4, 2 pm

"The Depths of Time and Space", Ylem Forum, Stanford see back cover

August 12, 2 pm

Planning Meeting for Ylem Exhibit, studio of Jerome Kirk, 874 41st St., Oakland, 415/654-3120. To plan an exhibit or exhibits that reveal the many kinds of artwork done by our members.

through August 10

Bay Area Computer Artists, San Francisco State Univ., Leonard Library, 1630 Holloway, San Francisco, 415/469-2011.

August 26, 1-5pm

Ylem Picnic, Twin Pines Park, 1220 Ralston Ave., Belmont. Two blocks West of El Camino Real, which has train and mainline bus connections. Site of two art galleries, as well as picnic area and lush woods. Come for an informal get-together. Info.: Lillian Quirke, 408/446-4310

August 25, 11:30 pm

Frontal Exposure, KQED Channel 9 will feature the kinetic metal sculpture of member Jerome Kirk.

Opportunities

Deadline August 1

San Francisco International Video Festival, unusual 1/4" video. \$100 honorarium for works shown. Info.: SFIVF, 1250 17th St. San Francisco, CA 94107, 415/863-8434.

August 1984

KRCB, Channel 22, is expected to go on the air. One program, *The New Alchemist*, will show experimental video. Info.: Ed Kessam, KRCB-TV, Box 464, Cotati, CA 94928, 707/585-9522.

Deadline August 15

"Ylem Showcase". A summons to Ylem members to submit slides of their work. Be included in a slide/sound show at Ylem's October Forum! Slides will be retained to show to gallery directors, so send only duplicates. Send to Janaia Donaldson, Concept/Image/Design, 3199 Waverly, Palo Alto, CA 94306.

October 18-20 (planning in progress)

"Technology and the Future of Aesthetics and Culture", conference of the National Association of Schools of Art and Design to be held in Portland, OR. Info.: NASAD, 11250 Roger Bacon Dr. #5, Reston, VA 22090

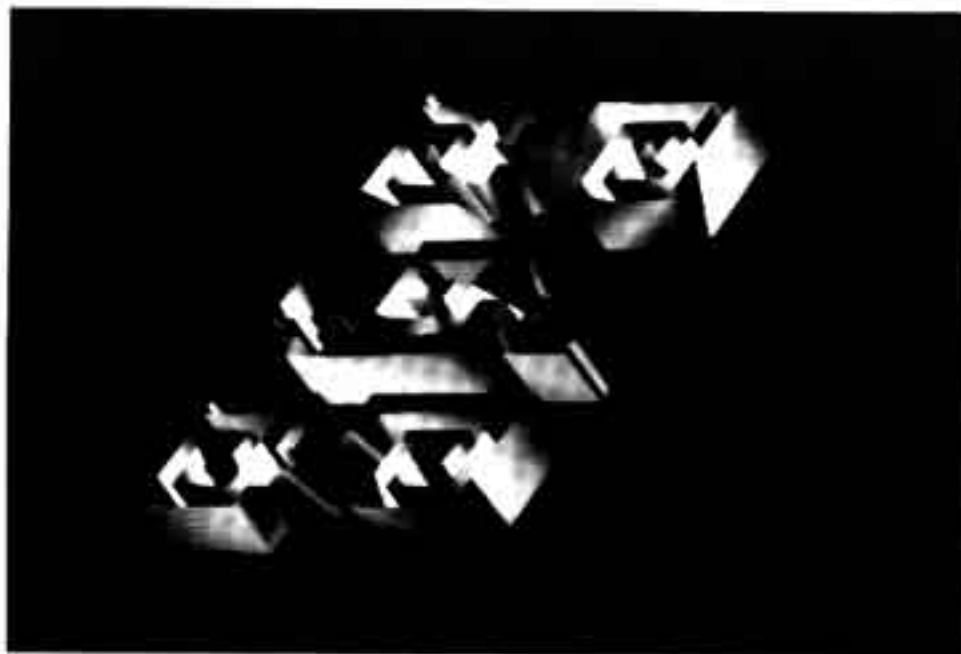
October 19-20 (planning in progress)

"Microcomputers in College Education", a conference to be held at De Anza College, Cupertino, with the assistance of the University of California, Santa Barbara. Info.: Oscar Ramirez, Dean, De Anza College, 21250 Stevens Creek Blvd., Cupertino, CA 95014, or Lillian Quirke, 408/446-4310. The conference will cover graphics and course offerings of all descriptions. Large numbers of small computers from five major companies will give participants a variety of hands-on experiences.

Ongoing

Exhibition/Performance Screening. Written proposals accepted throughout the year for alternative gallery. All media considered. For info: Northwest Artists Workshop, 522 N.W. 12th Ave., Portland, OR 97209; 503/220-0435.





Pattern 1.1 is a hollow object inspired by the precolumbian architectural patterns.

© 1984 Isaac Victor Karlow

I am interested in giving a new meaning to elements that were created with older technologies. The creation of computer-generated random patterns on Precolumbian motifs is one of the purposes of the *Maya Project*. Such a project consists of a series of images, objects and interactive stations that recreate the architectural patterns and ornaments found in the pyramids of the Maya people, who lived from approximately AD 300 until AD 800 in Mexico and Northern Guatemala.

The Maya Project also constitutes a semiotic exercise that deals with the dual meaning of zig-zagged patterns. It is curious how the modules on which Maya architecture is based, the staircase-like patterns, constitute the doomed visual elements, the stepped diagonals or jaggies, of low resolution computer technology. Staircase-like shapes had several meanings in Precolumbian mythology. They were often associated with opposite entities such as the deities of Earth and Water, or Death and Movement.

I create my computer-generated images with a system that includes a VAX 11/780, a frame buffer 512 x 512 x 8 bit planes and a Grinell 270 color raster monitor. I trace manually on a digitizing tablet the blueprints that describe the three-dimensional objects. All of the objects are rendered with the method of normal linear interpolation which produces smooth connections between polygons. The objects are treated as opaque bodies and lighted with a single diffuse light source.

The final coloring of the objects is done

by using color look-up tables and the method that I use for creating random patterns on solid objects is based on color aliasing effects. Aliasing refers to the distortions created in an image by discrete sampling of the originating database. Color aliasing effects can be produced by filling the color look-up tables with intensity values that are too far apart from each other. In that manner, the sample of the non-continuous values of the look-up tables become insufficient to create a continuous color scale that blends optically. Instead of getting a continuous gradation I get a stepped gradation or textured pattern.



Pattern 1.5 is a textured high-contrast version of Pattern 1.1 where the heavy pattern dissolves the three-dimensional quality of the object.

© 1984 Isaac Victor Karlow

I made a brief visit to the Eastern Seaboard in May, with Washington, Philadelphia, and New York as my destinations. In Washington, Lewis Kontnik, a new Ylem member, requested that I look him up. His new company, Reconnaissance, will deal in hi-tech art. At a Georgetown restaurant I spent a pleasant evening with him and his wife showing them pictures of Ylem artists' work. The rest of my two days there were spent on Capitol Hill, talking with my congressmen on behalf of arms control. It is a fascinating experience to feel close to the sources of power and to elicit some response. I recommend it!

Early on the morning of May 14 in Philadelphia, I spent some time at Swarthmore College in a basement room full of polyhedral models and dried sunflowers with physics professor Albert Rosenberg. He and a biologist friend are slicing off tips from sunflower stalks just where cells have begun to differentiate into flowers. They are utilizing a scanning electron microscope to make a mathematical study of origins of the helix pattern. His computer science colleagues then showed me helices and fractals in animation, and they all saw slides that I had brought. Albert and his friends were the founders of Form Forum, a group that conducts periodic seminars on visual form in mathematics, science, and art. As I was leaving, a casual glance told me that Scott Kim had met Albert: an inversion of the word "Swarthmore" was tacked up above the desk.

In a Chinese restaurant that night there were no free fortune cookies, but plenty of graphics software tidbits. I was dining with members of the Small Computers in the Arts group that publishes the SCAN newsletter, edited by the graphics software designer, Eric Podietz. Eric didn't have much notice that I was coming, but nevertheless arranged a grand evening. After supper, Frank Porett escorted us to a classroom at the Philadelphia College of Art where I showed them slides of my science-related prints and crafts, and of computer art being done by some Ylem members on the West Coast. Finally, we walked over to a video club to watch a very funny tape by Trip Denton composed of spliced-together video images and Commodore 64 computer animation.

In New York I sought out the Holography Museum, which offers a large informational display about the uses of holography; a smaller gallery; and continuous showings of the videotape "Introduction to Holography". I saw an unusually large (30" sq.) hologram from France and a holographic 3-D image made completely synthetically with a computer-aided design (CAD) system. At NYU, I was shown around the Interactive

Resource List

Telecommunications department by Red Burns. Although artist Darcy Gerberg teaches computer art there, the department's emphasis is on imparting graphic design skills to business and communications people. Its ongoing project is "Apple Bytes" which produces public service messages by computer for local TV quickly and cheaply.

At the core of the Big Apple, I found traces of Ylem: liquid crystal readout in a piece of jewelry by Ylem member Vernon Reed, who lives in Austin, which was included in a show of jewelry at the American Crafts Museum; and in the invitational show to celebrate the re-opening of the Museum of Modern Art, I ran into a large painting by San Jose artist Mark Tansy, a former student of Ylem's South Bay representative, Mark Briggs. Finally, it was a pleasure to meet personally an Ylem member who lives in Manhattan, Isaac Victor Kerlow, free-lancer, who does computer animation for the broadcast industry.*

I will be happy to supply addresses to interested members for the people and places mentioned. Please write to me at the Ylem address.

Ylem Notes from page 2

Collaboration Ahead!

Rodge Malina, the executive editor of *Leonardo Magazine*, attended our June 2nd business meeting. This art journal is published by the International Society for the Arts, Science and Technology. (ISAST). Since the society plans to branch out, offering exhibits, seminars, and conferences, and since our activities are similar, we are looking for ways to help each other. This prestigious publication, started in 1968, will send a sample copy if you write them at *Leonardo*, SFSU Art Dept., 1600 Holloway, San Francisco CA 94132. Memberships are \$30 per year.

Membership Drive

We will send samples of our newsletter to any friends that you indicate. We will also give you copies to take when you attend conferences. Also feel free to bring friends to Ylem events. Several people discovered us when given a subscription. Phone Louis M. Brill, 415/664-0694

Our publication offers much more to read and look at than before. The only problem with improving it is that it costs twice as much to produce! We didn't expect this when we raised the dues to one-and-a-half times the old rate. It will be difficult to stay on top of this, but your efforts to bring us new members will help. Other ways to meet costs may be needed. Until our non-profit status is assured, this will tax our ingenuity. Suggestions are welcome.

Quotes about books selected by Bob Ishi with comments by Ralph Stapenhorst, Daryl Reagan, Trudy Reagan, and Othmar Tobisch

The First Three Minutes: A Modern View of the Origin of the Universe, by Steven Weinberg (1977, now available as a Bantam pbk). An "oldie but goodie"? Weinberg later shared a Nobel Prize for his work on the "electroweak" unification. He's a wonderful writer and all math is kept to the appendix.

The Big Bang: Creation and Evolution of the Universe, by Joseph Silk (W.H. Freeman, 1980). Similar to Weinberg's book, but much more detailed and up-to-date.

Timescale: An Atlas of the Fourth Dimension, by Nigel Calder (Viking, 1983). An amazing book, detailing every aspect of "our" universe chronologically, including the evolution of the earth, life, and humanity. Includes a massive reference index (almost 100 pp) which is a virtual "encyclopedia of time".

The Cosmic Frontiers of General Relativity, by William J. Kaufmann III (Little, Brown, 1977). One of the most detailed surveys for the layperson.

The Voices of Time, J.T. Fraser, ed. (Univ. of Mass. Press, 2nd edition, 1981). A cooperative survey of views of time expressed by the sciences and humanites. A massive (710 pp) pbk anthology.

Galaxies, by Timothy Ferris (Sierra Club Books, 1982). One of the loveliest advances in recent memory has been the ability to capture the color of stellar objects on film. An award-winning, extraordinary book.

Deep Space, by Colin Ronan (Macmillan, 1982). Subtitled *Quasars, Star Probes, Black Holes, Parallel Universes, Big Bang, Steady State, Alien Life, and All the Theories and Phenomena of the Cosmos* (whew!). Authoritative, with much color.

Einstein's Universe, by Nigel Calder (Viking, 1979). An exploration of the most widely accepted modern theory of space and time, based on the TV special

Constructing the Universe, by David Layser (Sci.Am.Lib., 1984) An examination of Newton's, Einstein's, and many more controversial origin theories. Well illustrated and written, with some knowledge of calculus required.

The Dance of Life: Other Dimensions of Time, by Edward Hall (Anchor/Doubleday 1984). Time as culture: how time is consciously as well as unconsciously formulated, used, and patterned.

Order Out of Chaos: Man's New Dialog with Nature, by Ilya Prigogine (Bantam, 1984). A vast synthesis that embraces both reversible and irreversible time.

The Abyss of Time: Changing Concepts of the Earth's Antiquity, by Claude Albritton (Freeman, Cooper, 1980). A "liberal arts" approach to geologic time.

Science at Sea: Tales of an Old Ocean, by Tjeerd van Andel (W.H. Freeman, 1981). Shifting continents, ocean currents, underwater hot springs, etc. and their effect on life and climates.

The Essentials of Earth History by W.L. Stokes (Prentice Hall, 1972) and **An Introduction to Earth History** by Dott and Batten (McGraw-Hill, 1971) are two historical geology texts that come highly recommended.

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Next Forum

An Amateur Astronomer Talks About Eclipses

For Jacques Guerin

By Meredith Joan Angwin

"The Depths of Time and Space"

August 4, 2:00 pm, Stanford University Tressider Union

Geoffrey Chandler, painter: "Painting Infinity"

Clyde Spencer, geologist: "The Beginning of Life"

John Greenhill, physicist: "Relativity & Reality"

and more

Co-Sponsored by the Stanford Computer Art Society

Free -bring friends, bring art to share.

Directions: Tressider Union is behind the main Quad. From Palm Drive or Embarcadero, turn left onto Campus Drive and follow signs saying Tressider Union. In the Union, find signs upstairs with **Ylem** logo.



HEALY DESIGN

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Dark fountains flare. Bright gold and purple pink
That hide in light, too sharp for men to see
Except at eclipse. When the white rays sink
Behind the friendly moon, those times when we
Observe the sun that's hidden in the light
When shadows move, the umbral dark can show
The colors, arcs, anatomy of the bright
Display forever moving, that we know
Only by hearsay:

as we know the leaves
Keep autumn's colors hidden under green
All summer long, until the kind frost weaves
The red and gold release.

What can be seen
In front and shadow is the way things are,
Beneath the monochrome, the hidden star

II
Addicted, he has spent his money, dyes,
To follow that sure darkness which can show
The flares forever moving. Friends all praise
His photographs, and yet they scarcely know
How much it costs to follow and be glad
Of shadow-tracks. He goes the camera's eye
As much as the earth turns, and tracks it true.
To see the hidden: not a cheap demand.

No simple sun-shere, but the swirling heat
Eroding into space. Not second-hand,
He never takes a picture that repeats.
Perhaps essentric borders upon mad,
Perhaps the costs are more than merely high:
They think he's paying too much for his view

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