Ylem Rode the Wave, 1981-86

Trudy Myrrh Reagan

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Abstract
  YLEM: Artists Using Science and Technology non-profit group in the San Francisco Bay Area was active from 1981 to 2009. Publications: the *YLEM Newsletter* **(later, the YLEM ournal). In the 1990s, it published the** *Directory of Artists Using Science and Technology* **illustrated with members' work; its website was** **www.ylem.org**. **Programs: public YLEM Forums introduced artists to science, scientists to art and the general public to new artistic and technological expression. It staged field trips to laboratories, industrial sites and artists' studios and mounted exhibitions of members' work. Members made fast friends who encouraged each others work in this new arena.**

  The Scientists' Alphabet:
  Axolotl, Breccia, Coccyx, Doppler, Epizootic, Flysch, Golgi, Haploid, Isomer, Jargon, Krypton, Logarithm, Monadnock, Noesis, Oocyte, Pixel, Quark, Rorschach, Syzygy, Turgor, Uvula, Vesicle, Wankle, Xylem, Ylem, Zeener
  While inventing this humorous alphabet, I stumbled upon "ylem," roughly meaning "matter" in Greek. In terms of the Big Bang, it generally means matter and energy that flared forth to create the universe and is pronounced éye-lum.

  My attraction to science was aesthetic. My father was a geologist and surrounded us with richly colored geologic maps. The *Scientific American* and Gyorgy Kepes's 1956 book, *The New Landscape,* offered me visuals that I cared more about than abstract paintings. At Stanford, I studied art and only a smattering of science. However, my perception changed in 1959 when I married Daryl Reagan. Daryl was a physicist who thought of science as a gestalt – a cohesive whole whose various disciplines fit together. Through Daryl, I realized that science pulls the imagination to the edge of the universe. Noting that this awareness was absent in most of my artist friends, I saw a gap I could fill. My 1977 lectures in Palo Alto to artists were called "Touch the Universe." Gradually, I met some other artists who shared my enthusiasm.
  In 1979, as part of a grants-writing workshop, I created a mythical organization called Ylem -- a small study group of artists and scientists.
  In 1980, the Homebrew Computer Club at Stanford newcomer, Howard Pearlmutter, gave a program dedicated to the computer so far beyond what I expected that it was life-changing. Pearlmutter started his own group, called "Graphics Gatherings." Just watching Pearlmutter operate, corralling big names to speak like Ted Nelson (Dynabook) and Alvy Ray Smith (Pixar), and obtaining

free space at Stanford to hold his meetings, inspired me with what was possible. When I confided to him my ideas about a "Ylem" group, he encouraged me to recruit at his meetings.

Pearlmutter was friend with Scott Kim, a Stanford graduate student in computer science and inventor of calligraphy puzzles. They were friends with Stan Isaacs at Hewlett-Packard, who invited us to his puzzle parties where we discussed Doug Hofstetter's new book, *Gödel, Escher, Bach.*

Inception of YLEM

The first meeting of YLEM in February 1981 was purely to lay out an organization plan. (Originally it was Ylem in caps and lower case, since it is a real word). Among the 14 people from the Graphics Gathering were Scott Kim, who was just about to publish *Inversions;* Glenn Entis and Carl Rosendahl, two of the four partners who would start Pacific Data Images (which later merged with DreamWorks), and Pearlmutter himself. My friends came also: Bob Ishi, chief book designer at W. H. Freeman; goldsmith Carrie Adell; and Walter Zawojski, staff artist at SLAC.

I expressed how refreshing it was to meet people for whom boundaries between art and science didn't exist. We made the definition of who could be a member quite fluid: "Anyone who is fascinated may join." I showed them what we could accomplish working as a group.

It was a yeasty time, meeting people who *just knew* they were about to change the world. For years I was swept up by a wave that took me away from the introspective nature of work on my own art.

In general, participants saw YLEM as a springboard for developing ideas and reaching a larger audience. I saw their art evolve with new stimuli and technology.

The second meeting, held in conjunction with the Graphics Gathering, featured Larry Cuba's minimalist animation, *Two Space,* and a sonogram video of an unborn baby, such a novelty that the audience went "Aaaah!"

Two attendees, Eleanor Kent and Louis M. Brill, became devoted members and made many substantial contributions. At a time when almost no artists owned computers and no low-end machines were designed for graphics, Eleanor Kent, from 1981 to 1983, organized tours of computer graphic companies in Silicon Valley.

Eleanor herself was doing color copy art on a leased machine in her Victorian home. Active in mail art and stamp art groups, Eleanor organized exhibits, Forums, and became the "friendship promoter" who helped glue the group together. She would eventually be president for two years.

Louis M. Brill edited newsletters on his areas of expertise, produced a 1983 Forum on all aspects of holography and later a second one on 3D TV. After 1986, he periodically procured holographic stickers, which, combined with YLEM's art, became unique covers for the *YLEM Newsletter.*

We accomplished the goals we set out in our statement of purpose, when we applied for non-profit status in 1982:

"Ylem, a nonprofit 501(c)(3) organization, exists to connect art to the driving forces in our culture: science and technology.

"The Florentine Renaissance artists and the Impressionists all knew each other. Ylem exists to create such a community of artists. Studio visits, informal field trips to labs and industry, parties and discussions forged these friendships. Access to equipment for artists has often resulted.

"The artesian pressure of talent from the group opens up opportunities to exhibit and perform in an otherwise skeptical gallery milieu. Artists in Ylem use technology for positive purposes, and make abstract science ideas more concrete and important. They believe in the power of ideas to take form and spread, like the original matter, Ylem from the Big Bang, into the universe we see today.

"Instead of merely talking shop about particular techniques, Ylem will explore the impact of new technologies on society. Will arts spread like wildfire through new media channels like the web? Only if artists train themselves to use them."

Scott Kim's status as a student allowed him to sign us up for any available room at Stanford. Alternately, we met at California College of Arts and Crafts in Oakland (CCAC, now simply CCA); after that, at San Francisco State.

Though personal computers were still rare, there was a buzz in Silicon Valley surrounding uses for the computer. In 1983, Tapestry In Talent, a huge annual San Jose art and music festival, selected computer art as their theme, and offered 500 square feet to YLEM for a computer art exhibit. With my exhibit installation experience, I pulled it together.

Lucia Grossberger-Morales exhibited a long wall of computer-distorted faces. Before the capability was built-in, she was improvising with a video camera pointed at the computer screen. Jaron Lanier showed a nonviolent computer game called *Moon Dust* on the Commodore 64K. *Domino Player* by Bell Labs pioneer Kenneth Knowlton stole the show. It was made of 12 sets of dominos. In all, 19 artists were represented. Overhead were large patchwork quilts resembling big pixels borrowed from a senior center.

Stephen Wilson and Roger Malina lent their weight to YLEM in its crucial early years. Wilson became one of the first members of the YLEM board when he arrived in San Francisco in the early 1980s to teach Information Arts at San Francisco State University. At that time, he was working on the 1986 primer*, Using Computers to Create Art.*

Our first Canadian member, Julian Rowan, had once been involved with Experiments in Art and Technology (E.A.T.). E.A.T. began in New York in 1967 to bring artists and engineers together. Two of our other members, Louis Brill and Carrie Adell, hung out at E.A.T. as teenagers. Rowan observed that organizations like ours lasted only three to four years. "But," he said, "I'm joining you anyway!"

Conference Opportunities

I will never forget being invited to the reception for *Leonardo* in San Francisco by Roger Malina in 1983. His father, Frank Malina, had just died. The whole magazine was being transferred to where he lived. This magazine was so respected by us! Later, he would tell us, "If YLEM didn't do Forums, I would have to." In this way we worked together. For a time he also was a member of our board.

The next year, Prof. Marcia Chamberlain at San Jose State University organized the first CADRE Conference at San Jose State and Mission College. It featured a number of eye-popping projects: for instance, a huge Steve Pevnick display of computer-controlled water droplets creating "shapes" in space, and Milton Komisar's computer-controlled sculpture of Plexiglas rods which filled a totally-darkened room with pulsating lights like bursts of nerve impulses. Ron Resch described his gigantic egg-shaped sculpture in Canada which he made of triangular aluminum shapes, each calculated by computer. YLEM members were included as exhibitors, curators and presenters.

At the conference, designer David Healy spotted our amateurish newsletter, and offered help. His specialties were photo typesetting and hand-pasted layout design, both soon to be outmoded. He did our newsletter for a year. The last one was both glorious to see and awful to do. During SIGGRAPH in San Francisco in 1985, he designed the newsletter completely using the wonderful new capability of computer page layout. We passed out copies at the event. It was awful. His 128K Macintosh had very little RAM which necessitated continually putting in, and taking out, different floppy disks. He was using a flawed beta copy of Aldus PageMaker. It was the last newsletter he did for us!

SIGGRAPH '85 was a platform for us. We had artists in the art show. We organized a "Birds of a Feather" meeting to show slides of our art. Out-of-towners shared theirs. Itsuo Sakane, prominent in the art-science-tech scene in Japan, came. At SFMOMA, Lucia Grossberger-Morales was co-curator of a vast display of interactive art called *Input/Output.* Ed Tannenbaum gave a performance of video-enhanced dance movement.

Growth and Stability

I was suddenly working very hard. Bimonthly Forums and field trips were easy, newsletters were hard. After five years, just when I was ready to give YLEM up, Eleanor Kent organized a nominating committee. The committee recruited two frequent Forum attendees, Beverly Reiser and Fred Stitt, for membership. Reiser was president of YLEM for 14 years. During her tenure, she kept YLEM current by having her antennae always tuned to the Next New Thing. A trend reflected in her art as she switched from a sculptor to a multimedia artist.

Stitt, a protégé of visionary architect Bart Prince, hosted a fantastical high-tech YLEM Halloween party in 1985, and twice treated YLEM Forums to talks on

futuristic architecture. In 1990, he started the San Francisco Institute of Architecture, specializing in ecological design.

In 1986, Stitt transformed the *YLEM Newsletter* for a brief time into a journal, but it was not sustainable. His professional post office box became YLEM's address. That, the loyalty of our crew, and a $1000 annual gift from my mother, gave us stability. Also helpful was holography gallery owner, Gary Zellerbach. Gary would serve as YLEM's treasurer for many years.

When we finally gained non-profit status in 1994, we discussed whether to obtain grants and go big-time, or to maintain an informal, manageable level of basic programs. We opted for the latter. Subsequently, we helped artists and allied groups by providing non-profit status for their projects.

Continually Looking Ahead

Subjects that YLEM investigated preceded, sometimes by years, the era when they became buzzwords. To borrow from Steve Wilson, YLEM "kept watch on the cultural frontier."

Examples from YLEM's first five years:

1981 - Forum themes: dissipative structures in biology • brain function research (before PET scans and MRIs)

1982-4 - Computer graphics tours of firms in Silicon Valley.

1982 – Forums on teleconferencing, on computers in education using Logo computer language; Turning the Sphere inside Out, v.1. and other mathematics shown as computer graphic animations.

1983 - Computer courses for artists at De Anza College initiated by two YLEM members • infrared videos of dancers • graphic tablet development. • YLEM visited Donald Knuth to learn about TeXt and MetaFont • Milton van Dyke showed his *Album of Fluid Motion* • An animator, Don Venhaus, told the Forum of his distant dream to compute facial expressions (In those days, each frame of an animation took 30 minutes or more to compute. "Motion" required 30 frames per minute. The human face has many muscles to show emotion, each needing its own algorithm) • A prankster told how he projected the outline of a giant eye onto the TransAmerica Pyramid during the King Tut exhibit using laser light projection. (The corporation sued and won $1 in damages) • At the same Forum, we saw animation by means of holography.

1984 - Forums on bio-mimicry (then called Bionics) • Animation of the Lorenz Attractor (from Chaos theory) • A film by Nobel prize winner Paul Berg of his students doing a costume dance to show how DNA and RNA make proteins.

In Santa Monica, Sherrie Rabinowitz and Kit Galloway started the Electronic Cafe Network.

1985 - A Forum demo of 3D TV • Video synthesizer demo • *YLEM Newsletter* produced on the then-new Macintosh.

1986 - Forums showed demos of animated LCD jewelry by Vernon Reed, computer-aided sculpture innovations by Bruce Beasley • An *YLEM Journal*

article by Fred Stitt described the digitization of all media, Xandu, Dynabook; also AI (Artificial Intelligence), VR, (Virtual Reality), and Nanotech.

We networked, reporting about what was new in a very new field, drawing together scarce information. And we enabled very bright people with similar bizarre interests to find each other. Decades-long friendships developed, even across the world.

We were a home for isolated people working in unusual media, especially in other parts of the country. Our growth was exponential the first five years, peaking at 250. A decline in membership began in the mid-nineties, settling between 140 and 180. By then, we were only one of many, many such organizations all over the world.

Fascinating synergies happened at the YLEM Forums. We felt giddy; we rode around on waves of technologic innovation.

References and Notes

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4.Barbara Fisher, "A Question of Access: Technology and the Arts." *Artweek,* February 1996

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